55-1520-240-23-8/990-2

TM 55-1520-240-23-8

TECHNICAL MANUAL

AVIATION UNIT AND AVIATION INTERMEDIATE MAINTENANCE MANUAL

CH-47D HELICOPTER

This copy is a reprint which includes current pages from Changes 1-8.

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Aviation Unit and Aviation Intermediate Maintenance Manual

CH-47D HELICOPTER

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WARNING AND FIRST AID DATA.

For artificial respiration and other first aid data, refer to FM 21-11.

Personnel performing instructions involving operations, procedures, and practices which are included or implied in this technical manual shall observe the following instructions. Disregard of these warnings and precautionary information can cause serious injury, illness, death, or an aborted mission.

WARNING

An operating procedure, practice, etc., which if not correctly followed, could result in personal injury or loss of life.

CAUTION

An operation procedure, practice, etc., which if not strictly observed, could result in damage to or destruction of equipment.

NOTE

An operating procedure, condition, etc., which is essential to highlight.

WARNING

Cleaning Solvents

- **Those areas of skin and clothing that come in contact with cleaning solvents should be thoroughly washed immediately.**
- **Saturated clothing should be removed immediately.**
- **Areas in which cleaning solvents are used should be adequately ventilated to keep vapors to a minimum.**
- **If cleaning solvents contact the eyes, nose, or ears, flush them with generous quantities of water, and then seek medical attention immediately.**

WARNING

Electrical and Electronic Equipment Maintenance

- **Do not wear rings, watches, or metal jewelry when working around electrical equipment. Serious burns can result.**
- **Be careful when working on 150- and 300-volt dc circuits and on ac generator 115- and 200-volt ac outputs. Serious burns can result.**

WARNING

Dangerous Static Charges

Ground the helicopter during parking, fueling, or defueling. Sparks can cause fuel vapor to ignite.

WARNING

Dangerous Voltages at Antenna Terminals

Be careful when working near antenna or antenna terminals. Radio frequency (rf) voltages exist at these points when transmitters are operating. Contact with radiating antennas can cause serious rf burns.

WARNING

Poisonous Carbon Monoxide Fumes

Toxic carbon monoxide fumes may be present inside the helicopter whenever engines or apu are operating with cargo ramp open. Ventilate the cockpit.

WARNING

Corrosive Battery Electrolyte (Potassium Hydroxide)

- The electrolyte used in nickel-cadmium batteries contains potassium hydroxide which is a caustic substance.
- Contact with skin or eyes will cause burns.
- Use rubber gloves, rubber apron, and protective eye covering or face shield when handling battery.
- If personal contact with electrolyte occurs, flush immediately with large amounts of only clean water. Get medical attention immediately.

WARNING

Explosive Battery Hazard

- Before removing or installing battery, make sure battery switch is OFF and battery has cooled down if overheated.
- Connecting or disconnecting battery connector while battery is under load may cause explosion or electrical arcing resulting in injury to personnel.

WARNING

Electrolyte Contamination

- Separate nickel-cadmium batteries and lead-acid type batteries as far as possible from each other.
- Do not let anything associated with a lead-acid battery, including air, come in contact with a nickel-cadmium battery or its electrolyte. Sulfuric acid fumes from a lead-acid battery could result in damage to a nickel-cadmium battery leading to battery failure and a hazard to personnel.
- Do not use same tools or protective clothing for both types of batteries.
- If sulfuric acid has been somehow mixed with electrolyte in the battery, the upper areas of the battery cells will appear green in color indicating battery failure or damage and potential danger to personnel unless replaced.

WARNING

Acids and Alkalines

- Do not add water to acid. A violent action will result. Add acid to water in small quantities.
- Rust stripper is an alkaline solution.
- Avoid skin contact. Wear protective clothing. Wash thoroughly after using.

WARNING

Windshield Rain Repellent

- Do not let windshield rain repellent contact open flame. Deadly hydrogen fluoride gas could be generated.
- Wash hands with soap and water after handling repellent.

WARNING

Antiseize Compounds

- Some antiseize compounds are irritants. Avoid inhaling fumes and contact with skin.
- Wear protective clothing. Wash thoroughly after using.

WARNING

Paints, Varnishes, Dopes, Thinners, and Lubricants

- These materials are generally highly flammable and may be irritants. Work in a well-ventilated area away from open flames.
- Avoid inhaling fumes and prolonged contact with skin. Wash thoroughly after using.

WARNING

Epoxy Resins, Cements, and Adhesives

- These materials may contain toxic or irritating substances. They may also be flammable. Work in a well-ventilated area away from open flames.
- Wear protective clothing. Avoid contact with skin. Wash thoroughly after using.

WARNING

Radiation Hazard

- Some instruments contain radioactive material. Do not try to disassemble these instruments. They present no radiation hazard unless seal is broken.
- If you think seal is broken, do not remove instrument from helicopter before consulting Base Radioactive Protection Officer (AR 40-15).
- Use a beta-gamma radiac meter AN/PDR-27 or equivalent to determine if instrument contains radioactive material (radium).

WARNING

Fire Extinguishing Agents

- Monobromotrifluoromethane (CF_3Br) is highly volatile but is not easily detected by smell. It is not toxic, but reduces oxygen available for proper breathing.
- If liquid CF_3Br contacts skin, it can cause frostbite or low temperature burns.
- If agent touches eyes or skin, immediately flush affected area with running water. Get medical attention.

WARNING

Noise

- Sound pressure levels in this helicopter during some operating conditions exceed the Surgeon General's hearing conservation criteria (TB MED251).
- Hearing protection devices, such as aviator helmet or ear plugs, shall be worn by all personnel in and around the helicopter during operation.

WARNING

FOD

- Make sure area is clear of foreign objects before closing access doors, panels, and fairings.
- If area is not clear, damage to components or systems could result in personal injury or death.

WARNING

JP-4/JP-5 Fuel
MIL-T-5624

- Fuel is flammable. Do not use near welding areas, open flames, or on very hot surfaces.
- Use only with adequate ventilation.
- Avoid prolonged or repeated contact with skin. Prolonged contact may cause drying and irritation of skin.
- Remove saturated clothing immediately.
- Do not smoke when handling fuel.
- Do not take internally.
- Store in approved, metal safety containers.

WARNING

Lubricating Oils
MIL-L-23699 or MIL-L-7808

- If oil is decomposed by heat, toxic gases are released.
- Prolonged contact with liquid or mist may cause dermatitis and irritation.
- If there is prolonged contact with skin, wash affected area with soap and water. If oil contacts eyes, flush with water immediately. Remove saturated clothing.
- If swallowed, do not try to vomit. Seek immediate medical attention.
- When handling liquid oil, wear rubber gloves. If prolonged contact with mist is likely, wear approved respirator.

WARNING

Lifting Components With Hoist

- Lifting or hoisting of components shall only be done by designated personnel.
- The load capacity rating shall be clearly marked on hoist. Do not exceed load rating.
- Inspection and testing for cracks or defects in hoist system shall be performed on a regular basis.
- Before lifting, alert personnel in immediate areas.
- Before lifting, balance the load.
- Do not stand under load while it is being moved from one area to another on a hoist.
- Do not stand under load to do maintenance work.

WARNING

Hydraulic Pressures

- High pressures used in testing hydraulic components can cause line rupture or component failure.
- Only qualified personnel shall operate, service, and maintain hydraulic test equipment.
- Use heavy plastic shielding at least 1/2-inch thick when applying pressures over 250 psi to prevent injury to personnel.

WARNING

Hydraulic Fluid

- Hydraulic fluid is toxic. It can irritate skin and eyes and cause burns. When fluid is decomposed by heating, it releases toxic gases.
- Avoid inhaling. Use only with adequate ventilation. If prolonged contact with mist is likely, wear an appropriate respirator.
- Avoid contact with skin, eyes, or clothing. Wear rubber gloves if handling liquid.
- In case of contact with skin, immediately wash skin with soap and water. In case of contact with eyes, flush them immediately with clear water and get medical attention.
- If liquid is swallowed, do not induce vomiting; get immediate medical attention.

WARNING

Compressed Air

- Do not use more than 30 psi compressed air for cleaning purposes. Debris propelled under pressure can cause injury to eyes.
- Use eye protection to prevent injury to personnel.

WARNING

Flare Dispenser

- Flares can accidentally fire, sometimes from stray voltage. Injury or death can result.
- Remove all electrical power from helicopter before installing loaded payload module on dispenser assembly.
- Keep hands and face away from end of payload module during installation.

WARNING

Maintenance Platforms/Workstands

- Use only appropriate maintenance platforms/workstands illustrated in TM 55-405-10, or other approved locally procured stands and restraint equipment, when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

WARNING

- Do not wear eyeglasses having light sensitive lenses while performing magnetic particle (black light) or fluorescent penetrant inspections.
- Such lenses have a 16 to 45 percent light transmission loss.
- Wearing them can result in failure to detect flaws and cracks under ultraviolet light.

WARNING

Cadmium-Plated Tools

- **Use only chrome-plated or unplated steel tools when working on the helicopter.**
- **Cadmium or zinc-plated tools are not permitted, since these platings are prone to chipping and flaking. The chips and flakes could cause corrosion or fluid contamination.**
- **All tools, regardless of plating type, shall be serviceable and free of chipping.**

TECHNICAL MANUAL

No. 55-1520-240-23

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *10 May 1983*

Aviation Unit and Aviation Intermediate Maintenance Manual CH-47D HELICOPTER

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to Commander, U.S. Army Troop Support and Aviation Materiel Readiness Command, ATTN: DRSTS-MPSD, 4300 Goodfellow Boulevard, St. Louis, Missouri, 63120. A reply will be furnished to you.

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CHAPTER 10

FUEL SYSTEM

SECTION I

FUEL SYSTEM DESCRIPTION AND THEORY OF OPERATION

10-1 FUEL SYSTEM

DESCRIPTION

The airframe fuel system supplies fuel to the two engines, the apu, and the cabin heater. Fuel is contained in six fuel pods mounted to the outside of the helicopter between sta 189 and 438.

The system has two subsystems, left and right. The left (No. 1) system supplies fuel to the No. 1 engine and the apu. The right (No. 2) system supplies fuel to the No. 2 engine and the heater. In case of an emergency, an engine crossfeed system allows fuel from one system to supply both engines.

Each subsystem is made up of three fuel tank assemblies (forward auxiliary, main, and aft auxiliary). The auxiliary tanks act as storage before fuel is transferred to the main tanks.

The fuel system has provisions for connecting to internal ferry fuel containers for long range flight. When they are installed, fuel is transferred from the containers into the main fuel tanks.

FUEL TANK PODS

There are three fuel tank pod structures attached to each side of the fuselage external walls. The forward auxiliary pod extends from sta 189 to 238, the main pod from sta 262 to 372, and the aft auxiliary pod from sta 390 to 438. Each pod structure is hinged at its lower edge and attached to the fuselage structure by bolts and fasteners to provide rigid support for an internal fuel tank cell. Pod skin is made up of laminated honeycomb and fiberglass panels riveted to magnesium alloy bulkheads and stringers. The end bulkheads of each pod structure form the forward and aft facing walls of the intertank and end bays.

FUEL TANK CELLS

Inside each pod is a fuel tank cell. Each cell is constructed of rubber/fabric laminates, with adapters and fittings bonded into the construction of the cell to provide for the mounting of internal components, access doors, and mounting clamps. Each cell is self-sealing against 50 caliber projectiles and is crash-resistant. The tank cells are secured in the pods by bolts that are threaded into the tank supports from the exterior of the pod structure and by fuel tank components at their tank attachment points.

Fuel cells are constructed of self-sealing crashworthy material. Breakaway, self-sealing fittings are installed in each fuel line interconnecting fuel tanks to the fuselage structure. Under impact, the fittings shear or break at a designated location and seal themselves to retain fuel, thus keeping fuel spillage and post-crash fire hazard to a minimum.

Fiberglass backing boards are taped to the fuselage behind the fuel pods to protect the self-sealing feature of the cells.

FUEL TANK COMPONENTS

Each operational fuel tank contains plumbing and wiring as well as the following components:

- **Shutoff Valve** — All tanks have a shutoff valve mounted on the access door at the point of fuel entry. The valve closes when back pressure sensed by the high level control valve indicates that the tank is full.
- **High Level Control Valves** — Each fuel cell contains a high level control assembly consisting of two controllable valves (primary and secondary). When they sense that the tank is filled, they cause the closing of the shutoff valve at the tank access door.
- **Low Level Thermistor** — Each auxiliary tank has two thermistors mounted on the fuel boost pump. They shut off the pump when the tank is empty.
- **Fuel Boost Pump** — Each auxiliary tank has a fuel pump to transfer fuel to the main tank. Each main tank has two pumps which supply fuel to the fuel feed lines. The pumps are fitted on brackets on the floor of the tank cell, above the drain valves. They are connected by flexible hoses to the tank internal piping.

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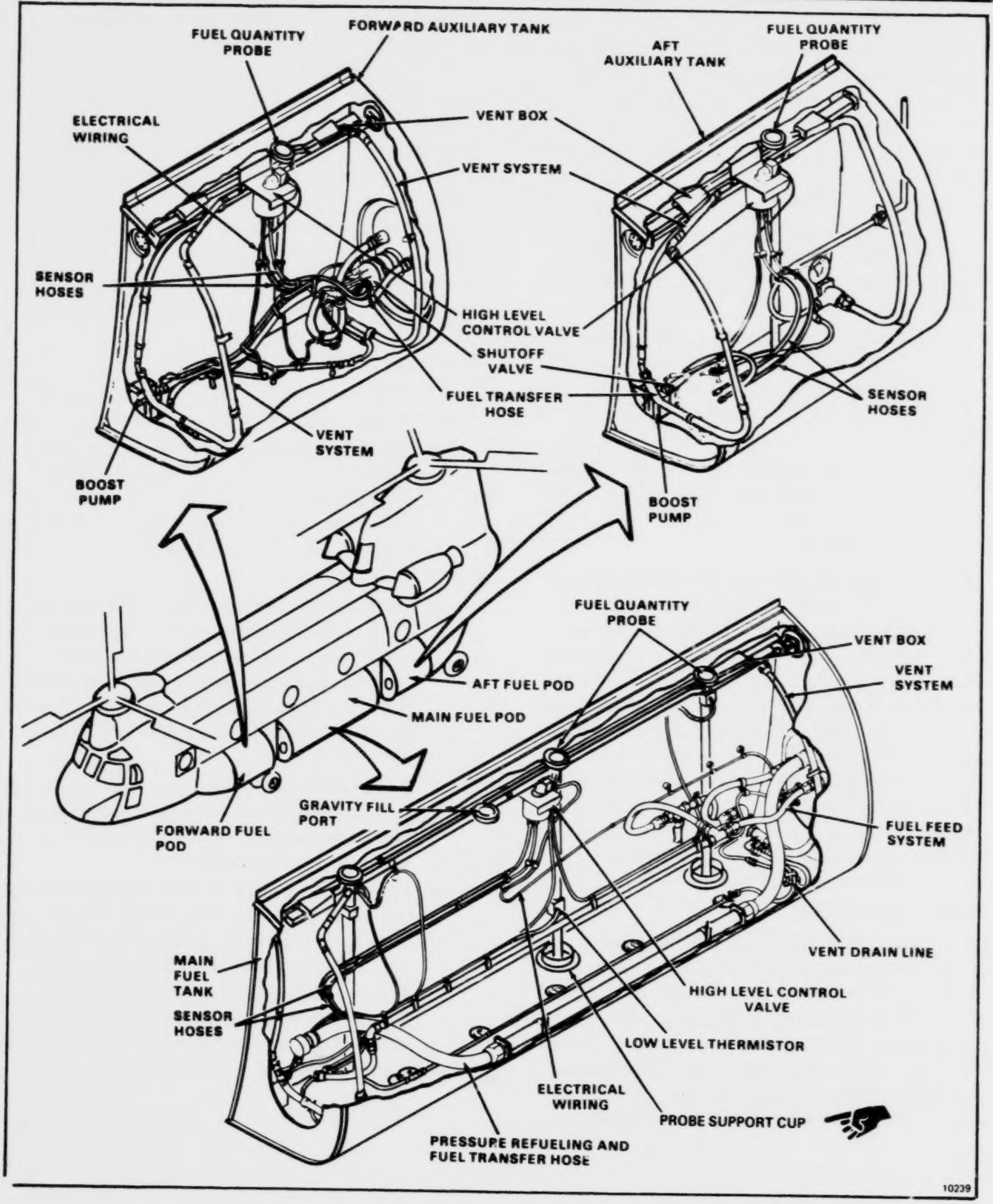
FUEL QUANTITY PROBE
FORWARD AUXILIARY TANK
ELECTRICAL WIRING
VENT BOX
VENT SYSTEM
SENSOR HOSES
HIGH LEVEL CONTROL VALVE
SHUTOFF VALVE
FUEL TRANSFER HOSE
VENT SYSTEM
BOOST PUMP
AFT AUXILIARY TANK
FUEL QUANTITY PROBE
SENSOR HOSES
BOOST PUMP
AFT FUEL POD
MAIN FUEL POD
FORWARD FUEL POD
FUEL QUANTITY PROBE
VENT BOX
VENT SYSTEM
GRAVITY FILL PORT
FUEL FEED SYSTEM
VENT DRAIN LINE
MAIN FUEL TANK
SENSOR HOSES
HIGH LEVEL CONTROL VALVE
LOW LEVEL THERMISTOR
ELECTRICAL WIRING
PROBE SUPPORT CUP
PRESSURE REFUELING AND FUEL TRANSFER HOSE
10239

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10-1 FUEL SYSTEM (Continued) 10-1

- **Drain Valves** — There are two drain valves in each tank, one aft and one forward. The forward valve is a sump drain. The aft valve is a sump drain and is open to the vent system.
- **Vent System** — The vent system in each tank is made up of tubes and two vent boxes. The system allows outside air to enter and exit the fuel cell during refueling and fuel usage. The system also prevents fuel from spilling in the event of a rollover.
- **Fuel Quantity Probes**—Each fuel subsystem has a fuel quantity indicating system. Five tank quantity transmitter probes (one in each auxiliary tank and three in the main tank) provide input to the indicating system. The fuel quantity signal is directed through a seven position switch to a fuel quantity indicator on the center instrument panel. The selector enables the operator to read fuel quantity in each of the six tanks individually, or to read the total fuel quantity. Probe support cups, located on the bottom of the cell, prevent excessive movement of the fuel probes.

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MAIN TANK COMPONENTS

The following components are used only in the main tanks:

- **Jet Pump**—A jet pump in each main tank evacuates fuel from the across helicopter pressure refueling lines into the main tank.
- **Engine Feed Suction System**—This subsystem consists of a bellmouth and check valve leading into the engine fuel feed system. If both boost pumps in a main tank fail, the engine fuel boost pump can still draw fuel from that tank through the bellmouth. Helicopter altitude must not exceed 6,000 feet for this system to be operational.
- **Delta Pressure Check Valve**—A delta pressure check valve is attached to each fuel boost pump in the main tank. These check valves prevent reverse flow and suction of air in the event of an uncovered boost pump.
- **Fuel Low Level Warning System** — This system has two thermistor units (one on the center probe in each main tank), a dual control unit on the cockpit floor below the center console, and two lights on the master caution panel. The thermistors transmit a signal to the dual control unit and activate the warning lights on the caution panel when the fuel level drops below approximately 65 gallons.

INTERTANK AREA

There are two intertank areas, forward and aft, between the three fuel pods in each subsystem. The forward intertank areas are in the front landing gear bays. They are functionally similar except that the right intertank area has a pressure refueling adapter and a control panel.

The right and left forward intertank areas each contain two check valves, five breakaway fittings, one pressure switch, a fuel vent tube from the forward fuel tank, and an evacuation line connected to the jet pump in each main tank.

The aft intertank areas are between the main fuel pod and the aft auxiliary pod. The right aft intertank area has connections to the fuselage for the heater fuel feed, a solenoid valve, No. 2 engine fuel feed and ferry fuel. The left aft intertank area has fuselage connections for apu fuel feed, No. 1 engine fuel feed, and ferry fuel. The apu fuel boost pump, solenoid valve, and apu pump drain are also located in the left aft intertank area.

Both aft intertank areas have six breakaway fittings, two check valves, two motor operated valves, two pressure switches, main tank vent tube, and plumbing.

The aft tank fuel vent tube is in the area behind the aft auxiliary tank on each side.

FUEL QUANTITY INDICATING SYSTEM

A fuel quantity selector switch and an indicator are on the center instrument panel and on the single-point pressure refueling panel in the right forward intertank bay area. They receive input signals from the fuel quantity probes in the fuel tanks through a switch box located in the cabin at sta 232. The selection of which panel is in use is made at the overhead single-point fuel control panel.

- **Selector Switch** — The selector switch is a seven-position rotary switch that allows the operator to choose whether the indicator will read the amount of fuel remaining in any one of the six tanks or the total fuel remaining.
- **Indicator** — Each indicator shows the amount of fuel, in pounds, remaining in the selected tank. Individual tank quantities are shown by a pointer. The total is shown on a digital readout.

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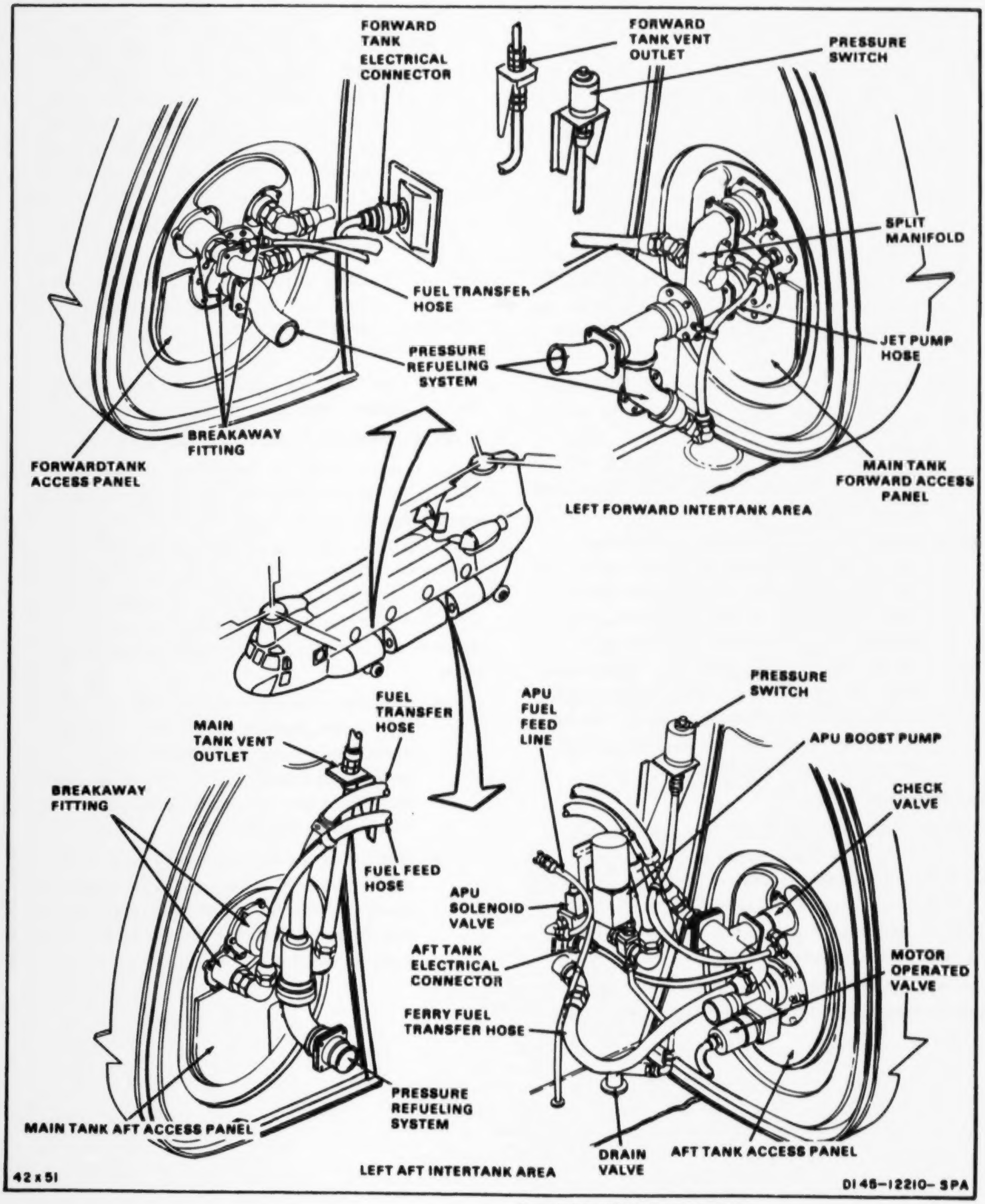
10-1 FUEL SYSTEM (Continued) 10-1


FORWARD TANK ELECTRICAL CONNECTOR
FORWARD TANK VENT OUTLET
PRESSURE SWITCH
SPLIT MANIFOLD
FUEL TRANSFER HOSE
JET PUMP HOSE
PRESSURE REFUELING SYSTEM
BREAKAWAY FITTING
FORWARDTANK ACCESS PANEL
MAIN TANK FORWARD ACCESS PANEL
LEFT FORWARD INTERTANK AREA
PRESSURE SWITCH
APU FUEL FEED LINE
FUEL TRANSFER HOSE
MAIN TANK VENT OUTLET
APU BOOST PUMP
BREAKAWAY FITTING
CHECK VALVE
FUEL FEED HOSE
APU SOLENOID VALVE
AFT TANK ELECTRICAL CONNECTOR
MOTOR OPERATED VALVE
FERRY FUEL TRANSFER HOSE
PRESSURE REFUELING SYSTEM
MAIN TANK AFT ACCESS PANEL
DRAIN VALVE
AFT TANK ACCESS PANEL
42 x 51
LEFT AFT INTERTANK AREA
DI 45-12210-SPA

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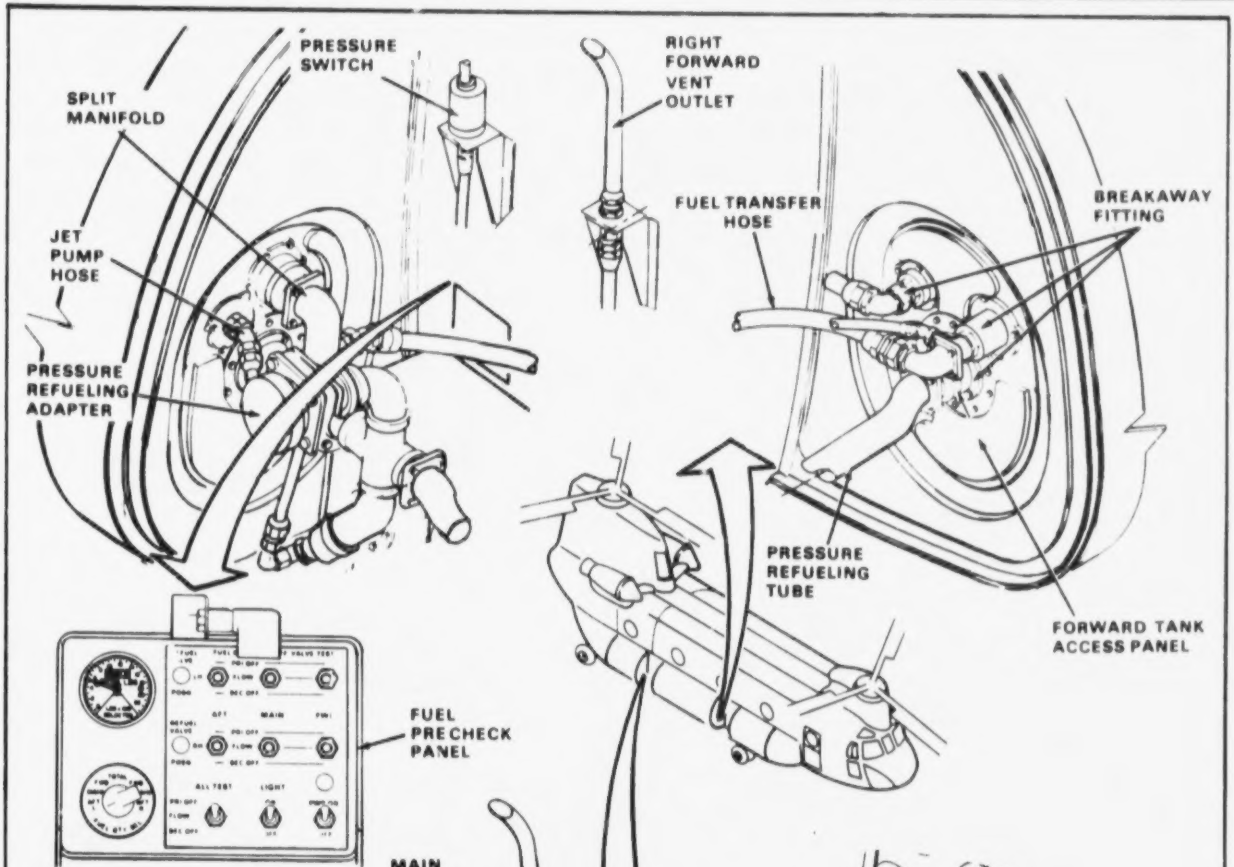
PRESSURE SWITCH
RIGHT FORWARD VENT OUTLET
SPLIT MANIFOLD
JET PUMP HOSE
PRESSURE REFUELING ADAPTER
FUEL TRANSFER HOSE
BREAKAWAY FITTING
PRESSURE REFUELING TUBE
FORWARD TANK ACCESS PANEL
FUEL PRECHECK PANEL
MAIN TANK VENT OUTLET
PRESSURE SWITCH
AFT TANK ELECTRICAL CONNECTOR
CHECK VALVE
HEATER FUEL FEED HOSE
HEATER SOLENOID VALVE
FUSELAGE FUEL FEED CONNECTION
FERRY FUEL FEED HOSE
MOTOR OPERATED VALVE
DRAIN VALVE
MAIN TANK ELECTRICAL CONNECTOR
BREAKAWAY FITTING
PRESSURE REFUELING TUBE
MAIN TANK AFT ACCESS PANEL
42 x 51
D145-12211-SPA

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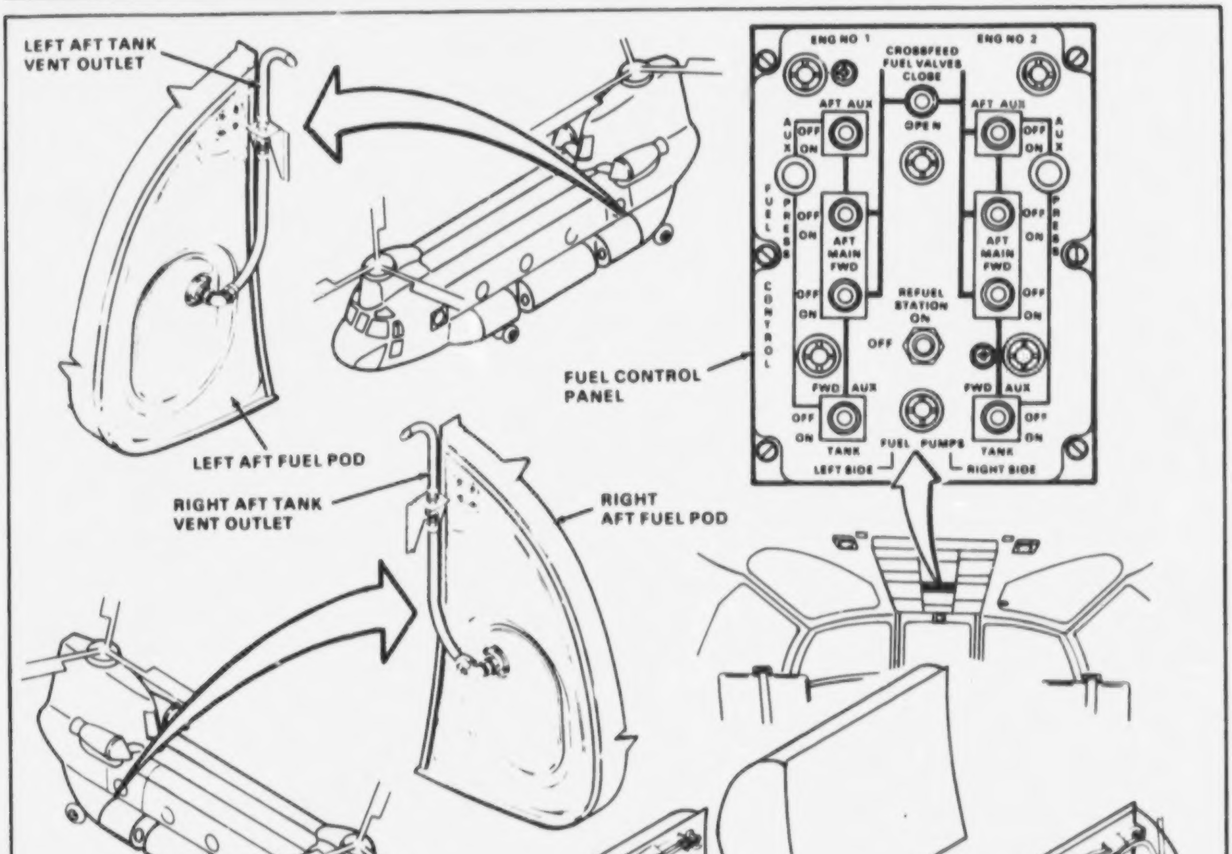
10-1 FUEL SYSTEM (Continued) 10-1


LEFT AFT TANK VENT OUTLET
LEFT AFT FUEL POD
RIGHT AFT TANK VENT OUTLET
RIGHT AFT FUEL POD
FUEL CONTROL PANEL
ENG NO 1
ENG NO 2
CROSSFEED FUEL VALVES CLOSE
OPEN
AFT AUX
AUX
OFF
ON
FUEL PRESS
AFT MAIN FWD
CONTROL
REFUEL STATION ON
OFF
FWD
AUX
TANK
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
ENGINE FEED SUCTION VALVE
RIGHT SIDE MAIN TANK
LEFT SIDE AFT TANK
LEFT SIDE MAIN TANK
JET PUMP
ACROSS HELICOPTER REFUELING LINE
LEFT SIDE FORWARD TANK

42 x 51

D145-12212 - SPA

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FUEL TRANSFER

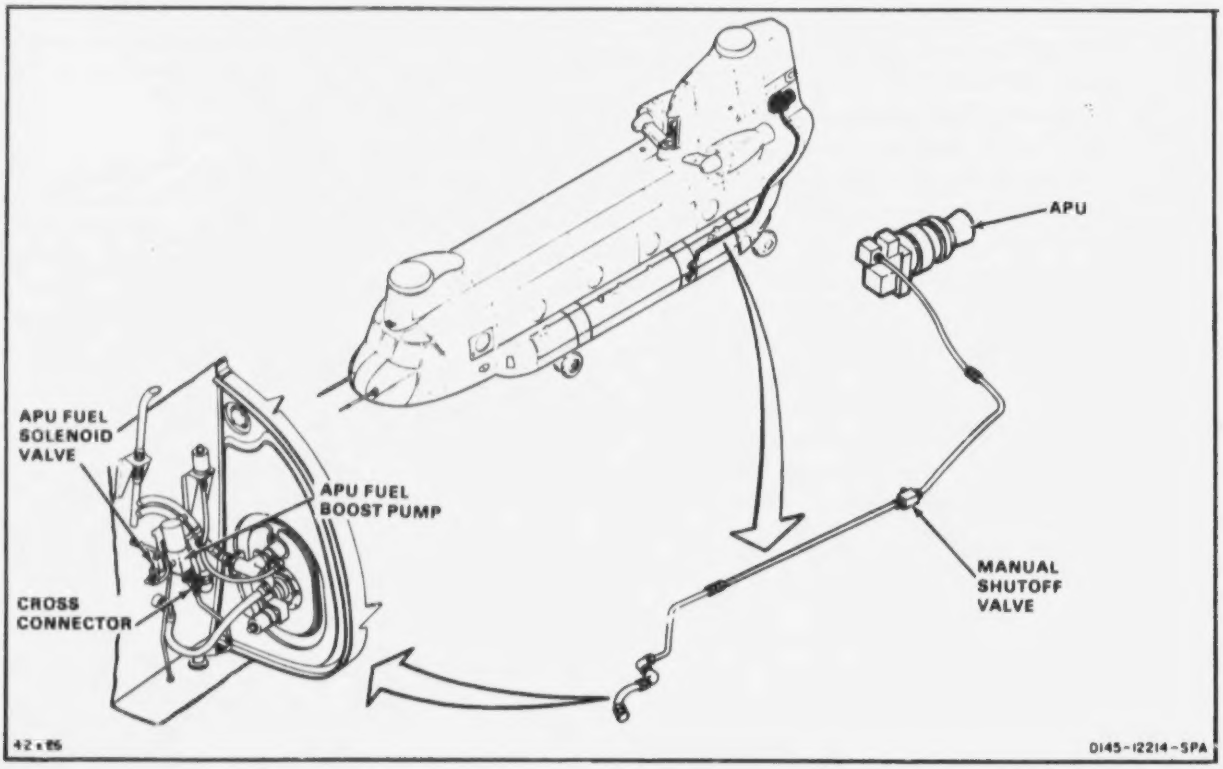
Fuel is pumped from the main tank into the fuel feed line by two boost pumps. Fuel is transferred from each auxiliary tank to the main tank through an internal boost pump. Thermistors on the pump shut it off when fuel is depleted.

Fuel transfers from the aft auxiliary tank through the same tube in the main tank that is used to refuel the aft tank during pressure refueling. Fuel passes through the top orifice in this split manifold and enters the main tank through the bottom orifice in this split manifold.

In addition to the engine fuel feed and apu fuel feed systems there is a heater fuel feed system. The heater fuel feed line leads from the cross connector in the right aft intertank bay. The fuel passes a solenoid-operated valve, enters the fuselage, and leads forward to the heater.

APU FUEL FEED SYSTEM

The apu fuel feed system begins in the left aft intertank area. Fuel from the main tank enters the cross connector and passes into the apu line on top of the connector. The fuel line passes through a boost pump and solenoid valve before entering the fuselage. Inside the fuselage, the fuel line passes through a manual shutoff valve at sta 540. It passes a quick-disconnect fitting at sta 600 and enters the apu.



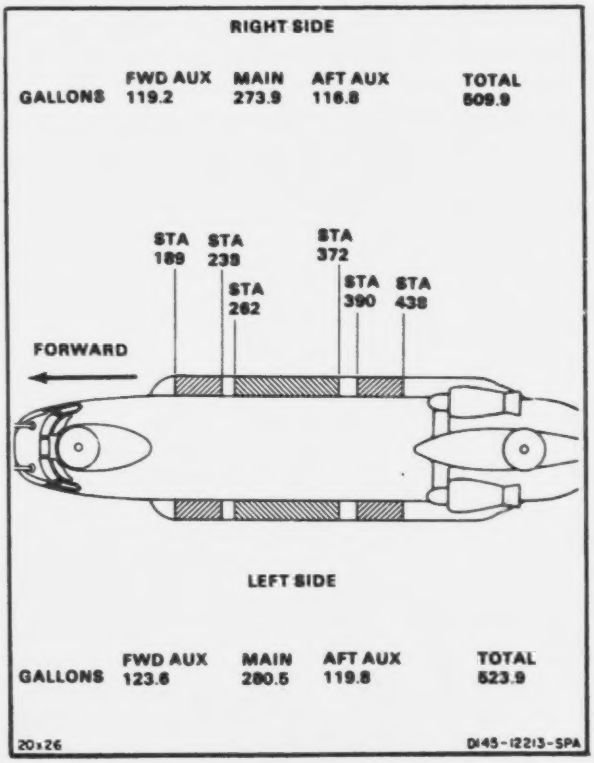
REFUELING

There are two methods of refueling the helicopter.

- **Gravity Fill Refueling** — Each tank has a gravity fill port which is opened for individual tank refueling. Refueling the helicopter by this method requires about 30 minutes.
- **Single Point Pressure Refueling** — The pressure refueling system allows the aircraft to be completely refueled in about 4 minutes with fuel supplied at 300 gallons per minute at 55 psi. Refueling is controlled by a panel located in the right front intertank area. Fuel enters the pressure refueling adapter and goes to the forward auxiliary tanks through a breakaway fitting on the aft access door. Fuel enters the main tanks through the bottom orifice of a split manifold. The top orifice of the manifold is connected to a tube which runs through the main tank and supplies the aft auxiliary tank. Two sensing tubes between the high level control valve and shutoff valve causes the shutoff valves to close when each tank is filled. The jet pump evacuates the forward refueling tubes of fuel when the main tank boost pumps are turned on.

The capacity of the airframe fuel system is 1034 gallons when all tanks are filled.

The capacities of individual tanks are shown below:



RIGHT SIDE

	FWD AUX	MAIN	AFT AUX	TOTAL
GALLONS	119.2	273.9	116.8	509.9

LEFT SIDE

	FWD AUX	MAIN	AFT AUX	TOTAL
GALLONS	123.6	280.5	119.8	523.9

GO TO NEXT PAGE

ENGINE FUEL FEED SYSTEM

Engine fuel is supplied by the airframe fuel system. The No. 1 (left) engine is supplied by the No. 1 (left) fuel subsystem. The No. 2 (right) engine is supplied by the No. 2 (right) fuel subsystem.

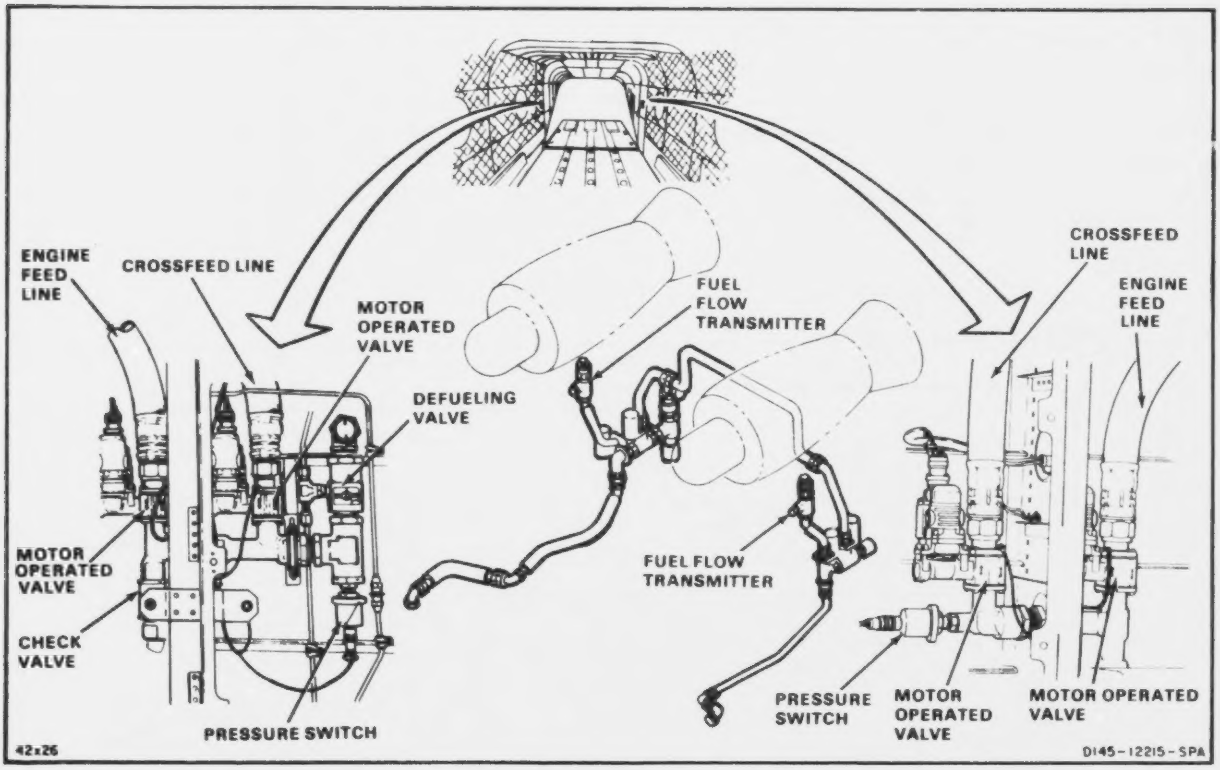
The fuel passes through a breakaway fitting in the rear wall of the main tank into the aft intertank area to a cross connector on the fuselage.

The cross connector directs fuel through the fuselage and to a drain fitting on the bottom skin of the intertank bay. The connector on the left side also directs fuel to the apu and on the right side to the heater.

Interconnecting the two engine fuel feed systems is a fuel crossfeed line with two motor operated shutoff valves. The crossfeed system allows fuel from one system to supply both engines in case one system becomes inoperative. The No. 2 system has a manually operated valve for defueling purposes.

The engine fuel passes a pressure switch, motor operated valve, and fuel flow transducer before passing through a fuselage quick-disconnect fitting on the way to the engine fuel boost pump.

An engine feed suction line in each main tank works as a backup system in case both main tank boost pumps fail. When one main tank boost pump fails, the check valve for that pump closes to prevent reverse flow, or air being drawn into the engine feed line. When both boost pumps fail, fuel is drawn by the engine fuel boost pump through a separate hose in the main tank. Flight altitude must not exceed 6000 feet in this condition.


ENGINE FEED LINE
CROSSFEED LINE
MOTOR OPERATED VALVE
DEFUELING VALVE
FUEL FLOW TRANSMITTER
CROSSFEED LINE
ENGINE FEED LINE
MOTOR OPERATED VALVE
CHECK VALVE
FUEL FLOW TRANSMITTER
PRESSURE SWITCH
PRESSURE SWITCH
MOTOR OPERATED VALVE
MOTOR OPERATED VALVE
42x26
D145-12215-SPA

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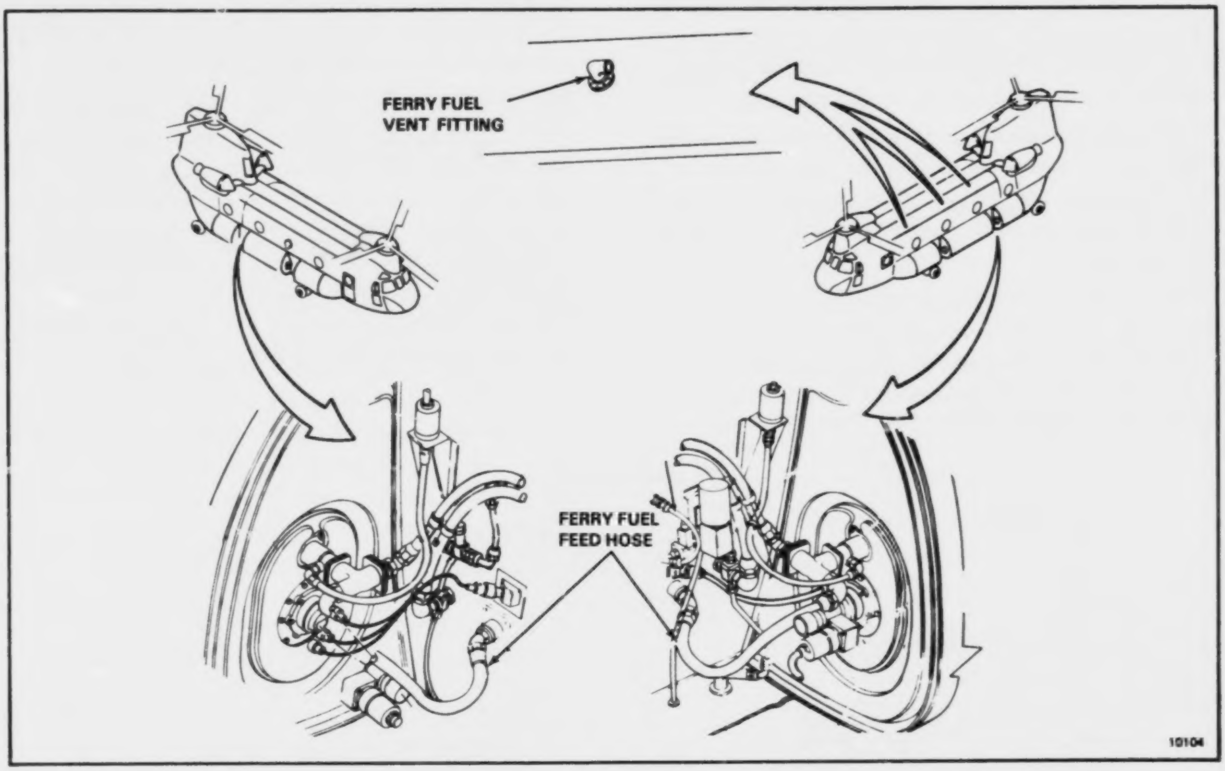
FERRY FUEL SYSTEM (WITH 19)

Provisions exist in the helicopter for use of a ferry fuel system. The provisions consist of two ferry fuel fittings in the left and right side of the cabin at approximately sta 375. They are connected to the main fuel tank system. In addition, 3 vent fittings are at the top of the cabin at sta 240, 360 and 460.


FERRY FUEL VENT FITTING
FERRY FUEL FEED HOSE
10104

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THEORY OF OPERATION

FUEL DELIVERY SYSTEM

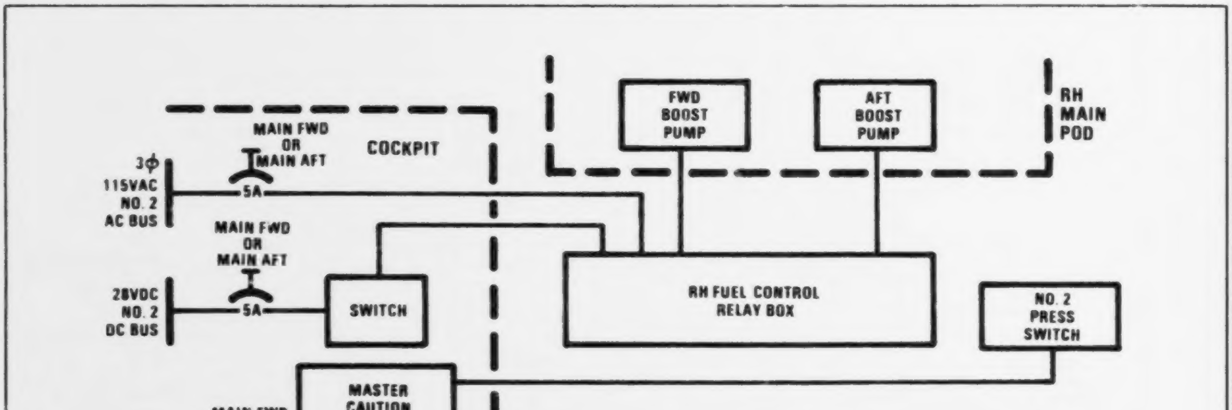
The fuel pumps for all tanks operate on 115 volts ac from number 1 or 2 ac bus and are controlled by 28 volts dc. When the ac circuit for any pump is closed, 115 volts ac is connected to a relay in the fuel pump control relay box. Closing the pump dc circuit breaker connects dc voltage to the pump control switch on the overhead **fuel control panel.**

On the **main tank fuel pumps,** placing the overhead panel switch to ON operates the relay directly, connecting ac power to the pump to operate it. On each **auxiliary tank fuel pump**, placing the panel switch to ON connects 28 volts to a thermistor control unit in the cabin.

Two thermistors are mounted on each auxiliary fuel pump. As long as both thermistors are covered by fuel, 28 volts passes through the control relay connecting ac power to operate the pump. When the fuel level drops enough to uncover both thermistors, their resistance changes, opening the control relay and shutting the pump off. Two thermistors are used to ensure that the pump does not shut down in response to fuel sloshing.

During normal operation with all fuel pumps operating, each of the two main pumps in the left and right systems delivers fuel through its check valve to a common engine fuel line. Fuel passes through the feed line through a **system check valve,** a **pressure switch,** a **main engine fuel valve** and a **fuel flow transmitter** to the engine fuel system.

- The **check valve** has a thermal relief feature that allows fuel to flow back into the tank before the temperature within the line from check valve to engine reaches a point where the line could rupture because of fuel expansion.
- The **pressure switch** lights a capsule on the master caution panel when fuel pressure drops below 10 psi.
- The **main engine fuel valve** is motor-operated by 28 volts dc. It is controlled through the cockpit fire warning handle for that engine. A lever on the valve allows it to be also shut off manually.
- The **flow transmitter** provides a signal to a gage on the center instrument panel.


FWD BOOST PUMP
AFT BOOST PUMP
RH MAIN POD
MAIN FWD OR MAIN AFT
COCKPIT
3ϕ 115VAC NO. 2 AC BUS
5A
MAIN FWD OR MAIN AFT
28VDC NO. 2 DC BUS
5A
SWITCH
RH FUEL CONTROL RELAY BOX
NO. 2 PRESS SWITCH
MASTER CAUTION PANEL
MAIN FWD OR MAIN AFT
28VDC NO. 1 DC BUS
5A
SWITCH
LH FUEL CONTROL RELAY BOX
NO. 1 PRESS SWITCH
MAIN TANK FUEL PUMPS
3ϕ 115VAC NO. 1 AC BUS
5A
MAIN FWD OR MAIN AFT
FWD BOOST PUMP
AFT BOOST PUMP
LH MAIN POD
16951

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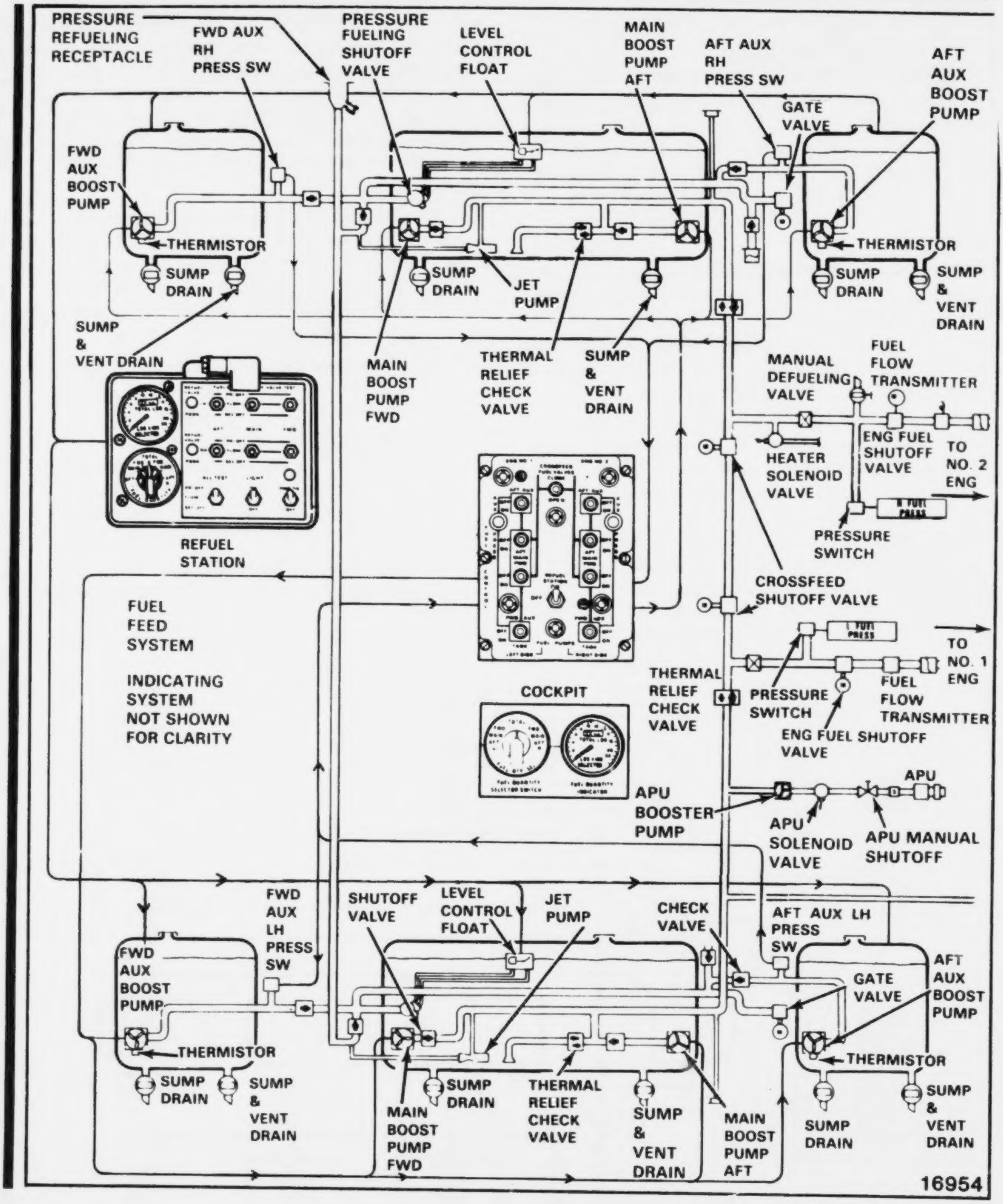
PRESSURE REFUELING RECEPTACLE
FWD AUX RH PRESS SW
PRESSURE FUELING SHUTOFF VALVE
LEVEL CONTROL FLOAT
MAIN BOOST PUMP AFT
AFT AUX RH PRESS SW
AFT AUX BOOST PUMP
GATE VALVE
FWD AUX BOOST PUMP
THERMISTOR
SUMP DRAIN
SUMP DRAIN
JET PUMP
THERMISTOR
SUMP DRAIN
SUMP & VENT DRAIN
SUMP & VENT DRAIN
MAIN BOOST PUMP FWD
THERMAL RELIEF CHECK VALVE
SUMP & VENT DRAIN
MANUAL DEFUELING VALVE
FUEL FLOW TRANSMITTER
HEATER SOLENOID VALVE
ENG FUEL SHUTOFF VALVE
TO NO. 2 ENG
PRESSURE SWITCH
REFUEL STATION
CROSSFEED SHUTOFF VALVE
FUEL FEED SYSTEM
INDICATING SYSTEM NOT SHOWN FOR CLARITY
TO NO. 1 ENG
THERMAL RELIEF CHECK VALVE
PRESSURE SWITCH
FUEL FLOW TRANSMITTER
ENG FUEL SHUTOFF VALVE
COCKPIT
APU
APU BOOSTER PUMP
APU SOLENOID VALVE
APU MANUAL SHUTOFF
FWD AUX LH PRESS SW
SHUTOFF VALVE
LEVEL CONTROL FLOAT
JET PUMP
CHECK VALVE
AFT AUX LH PRESS SW
FWD AUX BOOST PUMP
GATE VALVE
AFT AUX BOOST PUMP
THERMISTOR
THERMISTOR
SUMP DRAIN
SUMP & VENT DRAIN
SUMP DRAIN
MAIN BOOST PUMP FWD
THERMAL RELIEF CHECK VALVE
SUMP & VENT DRAIN
MAIN BOOST PUMP AFT
SUMP DRAIN
SUMP & VENT DRAIN
16954

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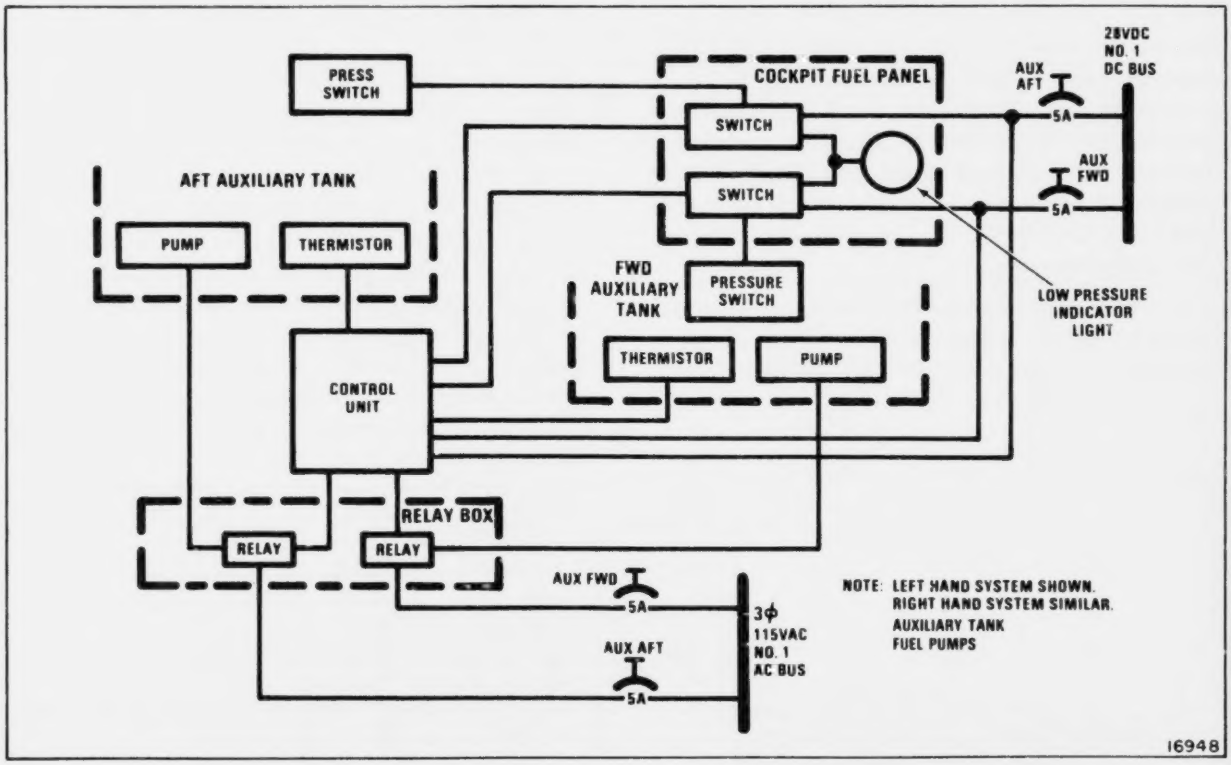
10-1 FUEL SYSTEM (Continued) 10-1

If either fuel supply system becomes inoperative, both engines can be supplied by the other system by opening the **engine crossfeed valves.** The valves operate on 28 volts dc from the No. 1 dc bus and are controlled from the overhead fuel control panel.

Each of the engine fuel gate valves and the two crossfeed valves has **indicating lights** next to it that come on during the time the valve is opening or closing. The lights will also come on and remain on if the valve stops at any position other than fully open or closed.

Power to operate the indicator lights comes from the 28 volt dc buses.


PRESS SWITCH
COCKPIT FUEL PANEL
28VDC NO. 1 DC BUS
AUX AFT
5A
SWITCH
SWITCH
AUX FWD
5A
AFT AUXILIARY TANK
PUMP
THERMISTOR
FWD AUXILIARY TANK
PRESSURE SWITCH
LOW PRESSURE INDICATOR LIGHT
THERMISTOR
PUMP
CONTROL UNIT
RELAY BOX
RELAY
RELAY
AUX FWD
5A
3ϕ 115VAC NO. 1 AC BUS
AUX AFT
5A
16948

NOTE: LEFT HAND SYSTEM SHOWN. RIGHT HAND SYSTEM SIMILAR. AUXILIARY TANK FUEL PUMPS

GO TO NEXT PAGE

FUEL QUANTITY INDICATING SYSTEM

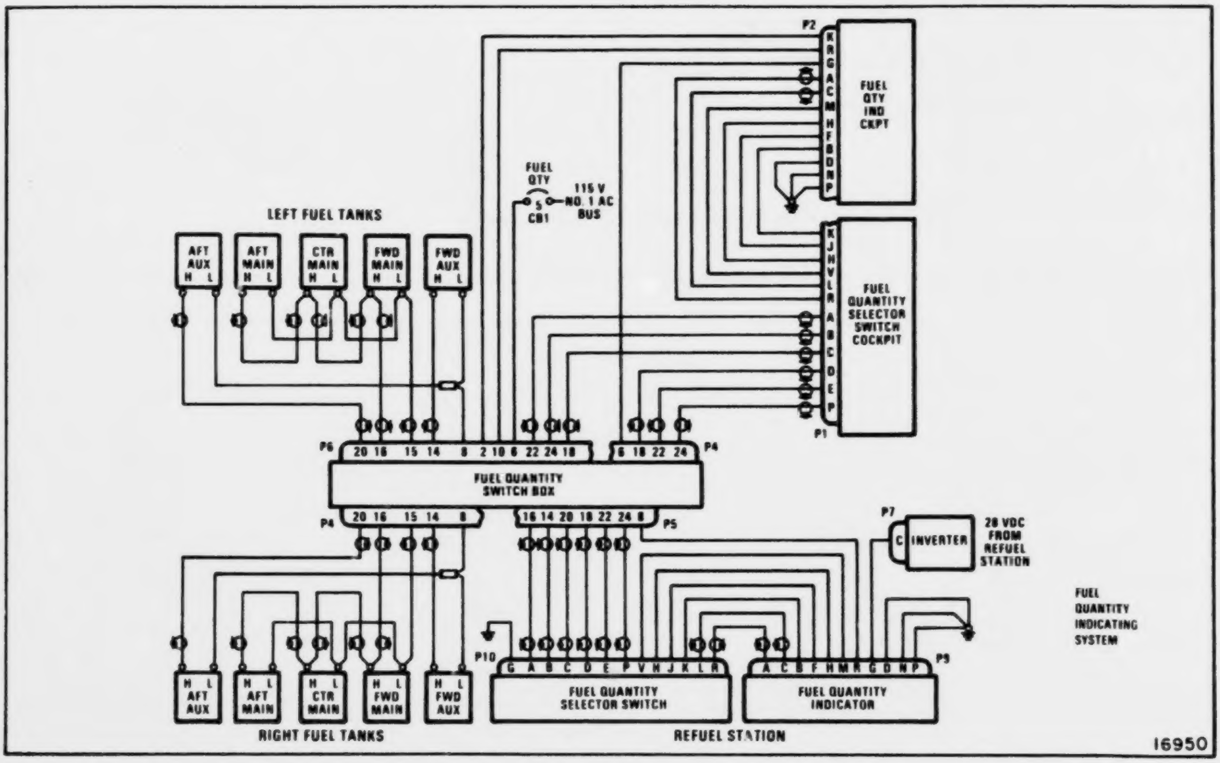
The basic sensing elements of the indicating system are the **fuel quantity probes** in each tank. Each probe is a capacitor in an indicator bridge circuit. Since the dielectric constant of fuel is twice that of air, the capacitance of a probe is twice as great when the tank is full as it is when the tank is empty. At intermediate levels, the capacitance is proportional to fuel level.

Information from all probes is directed through a **switch box** to one of the two **selector switches.** From the switch, information from the selected tank or the total of all tanks is directed to the accompanying **fuel quantity indicator.** Each indicator contains two servo amplifiers, two servo motors, elements of bridge circuits, and calibration potentiometers.

The change in probe capacitance as the fuel level varies creates an imbalance in the bridge circuits resulting in a gage correction output signal. This signal is amplified to drive a servo motor. The motor works through reduction gearing to move a variable resistor wiper arm to re-establish bridge balance. A pointer on the wiper shaft moves across the calibrated scale of the indicator to indicate the amount of fuel remaining in the selected tank.

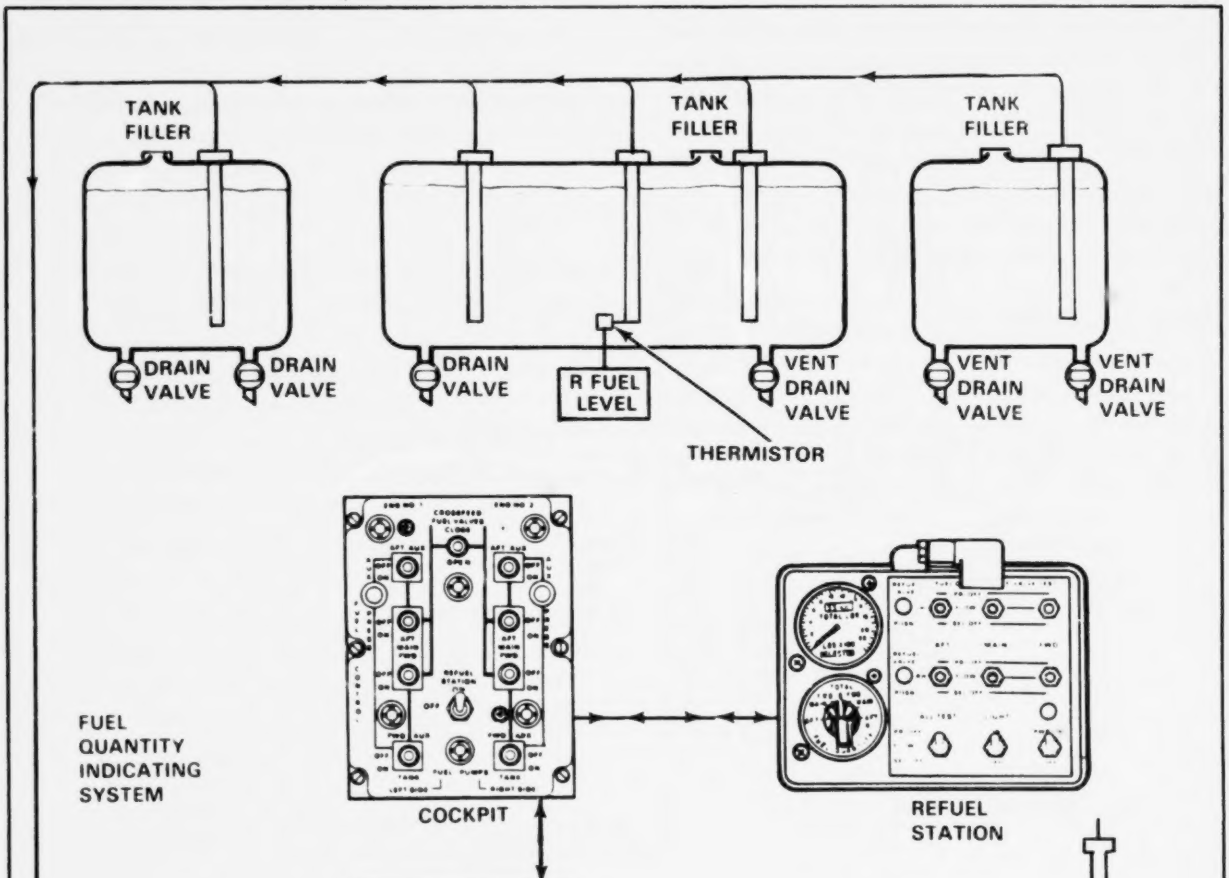
The wiper arm is also mechanically linked to a counter mechanism that always displays the total fuel quantity in pounds, regardless of selector knob position.

The choice of cockpit or refueling station panel indicator is made at the overhead fuel control panel through relays in the switch box. If the REFUEL STATION switch on the overhead panel and the PWR switch at the refueling station are OFF, probe signals are connected to the cockpit selector switch. When the switches are ON, 28 volts dc is connected to the switch box to operate the relays. This connects the probe signals to the refueling station switch. At the same time, dc power is supplied to an **inverter** that provides 115 volt 400 Hz singe phase ac power to the refueling station indicator.


P2
K R G A C M H F B D N P
FUEL QTY IND CKPT
FUEL QTY
5
CB1
115 V NO. 1 AC BUS
LEFT FUEL TANKS
AFT AUX H L
AFT MAIN H L
CTR MAIN H L
FWD MAIN H L
FWD AUX H L
K J H V L R A B C D E P
FUEL QUANTITY SELECTOR SWITCH COCKPIT
P1
P6
20 16 15 14 8 2 10 6 22 24 18
6 18 22 24
P4
FUEL QUANTITY SWITCH BOX
P4
20 16 15 14 8
16 14 20 18 22 24 8
P5
P7
C INVERTER
28 VDC FROM REFUEL STATION
P10
G A B C D E P V H J K L R
A C B F H M R G D N P
P3
FUEL QUANTITY SELECTOR SWITCH
FUEL QUANTITY INDICATOR
H L AFT AUX
H L AFT MAIN
H L CTR MAIN
H L FWD MAIN
H L FWD AUX
RIGHT FUEL TANKS
REFUEL STATION
16950

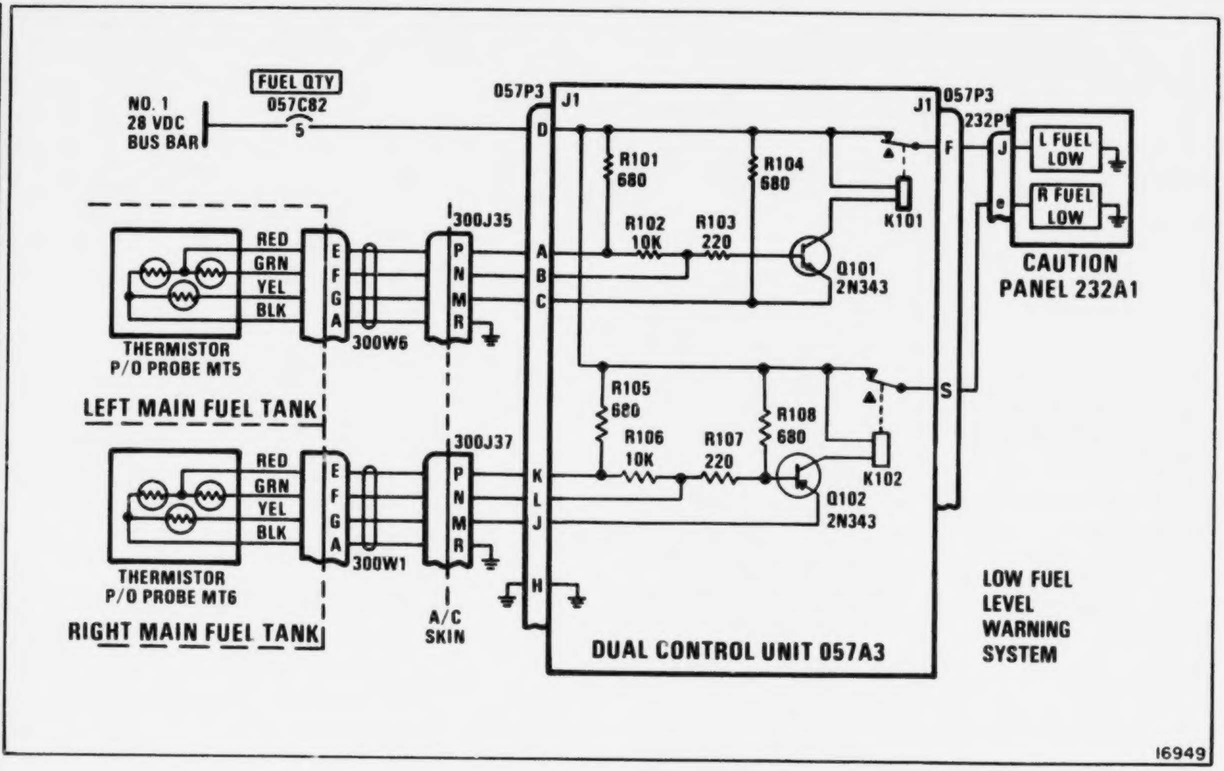
FUEL QUANTITY INDICATING SYSTEM

GO TO NEXT PAGE


TANK FILLER
TANK FILLER
TANK FILLER
DRAIN VALVE
DRAIN VALVE
DRAIN VALVE
R FUEL LEVEL
VENT DRAIN VALVE
VENT DRAIN VALVE
VENT DRAIN VALVE
THERMISTOR
FUEL QUANTITY INDICATING SYSTEM
COCKPIT
REFUEL STATION
FUEL QUANTITY PROBES
DRAIN VALVE
VENT DRAIN VALVE
DRAIN VALVE
L FUEL LEVEL
VENT DRAIN VALVE
DRAIN VALVE
VENT DRAIN VALVE
THERMISTOR
16953

GO TO NEXT PAGE

Low fuel level warning lights (L FUEL LOW and R FUEL LOW) for the left and right main tanks are on the master caution panel. They are activated by 28 volts from the No. 1 dc bus through a thermistor on the center probe of each main tank. When the fuel level in a tank drops to about 370 pounds, the thermistor is uncovered. This energizes a relay within **dual control unit (057A3)** to close and the caution light for that tank comes on.


NO. 1
28 VDC
BUS BAR
FUEL QTY
057CB2
5
057P3
J1
D
R101
680
R104
680
K101
J1
057P3
232P1
F
J
e
L FUEL LOW
R FUEL LOW
CAUTION PANEL 232A1
300J35
RED
GRN
YEL
BLK
E
F
G
A
P
N
M
R
A
B
C
R102
10K
R103
220
Q101
2N343
THERMISTOR P/O PROBE MT5
300W6
LEFT MAIN FUEL TANK
R105
680
R106
10K
R107
220
R108
680
K102
Q102
2N343
S
300J37
K
L
J
H
THERMISTOR P/O PROBE MT6
300W1
RIGHT MAIN FUEL TANK
A/C SKIN
DUAL CONTROL UNIT 057A3
16949

LOW FUEL LEVEL WARNING SYSTEM

GO TO NEXT PAGE

PRESSURE REFUELING

When the REFUEL STATION switch on the overhead panel is turned on, the **refuel control panel** in the right forward intertank bay receives 28 volts dc from the switched battery bus. Turning on the PWR switch at the refuel panel causes the following to occur:

- At the refuel panel, the PWR light comes on and the LIGHT switch is armed.
- Twenty-eight volts is supplied to the **inverter,** which then supplies 115 volts ac to the fuel quantity circuits.
- Voltage is supplied to the fuel quantity switch box to connect signals to the refuel panel selector switch.
- All **high level shutoff valve** test switches are armed.
- The **gate valve** in each of the aft auxiliary fuel tanks opens.

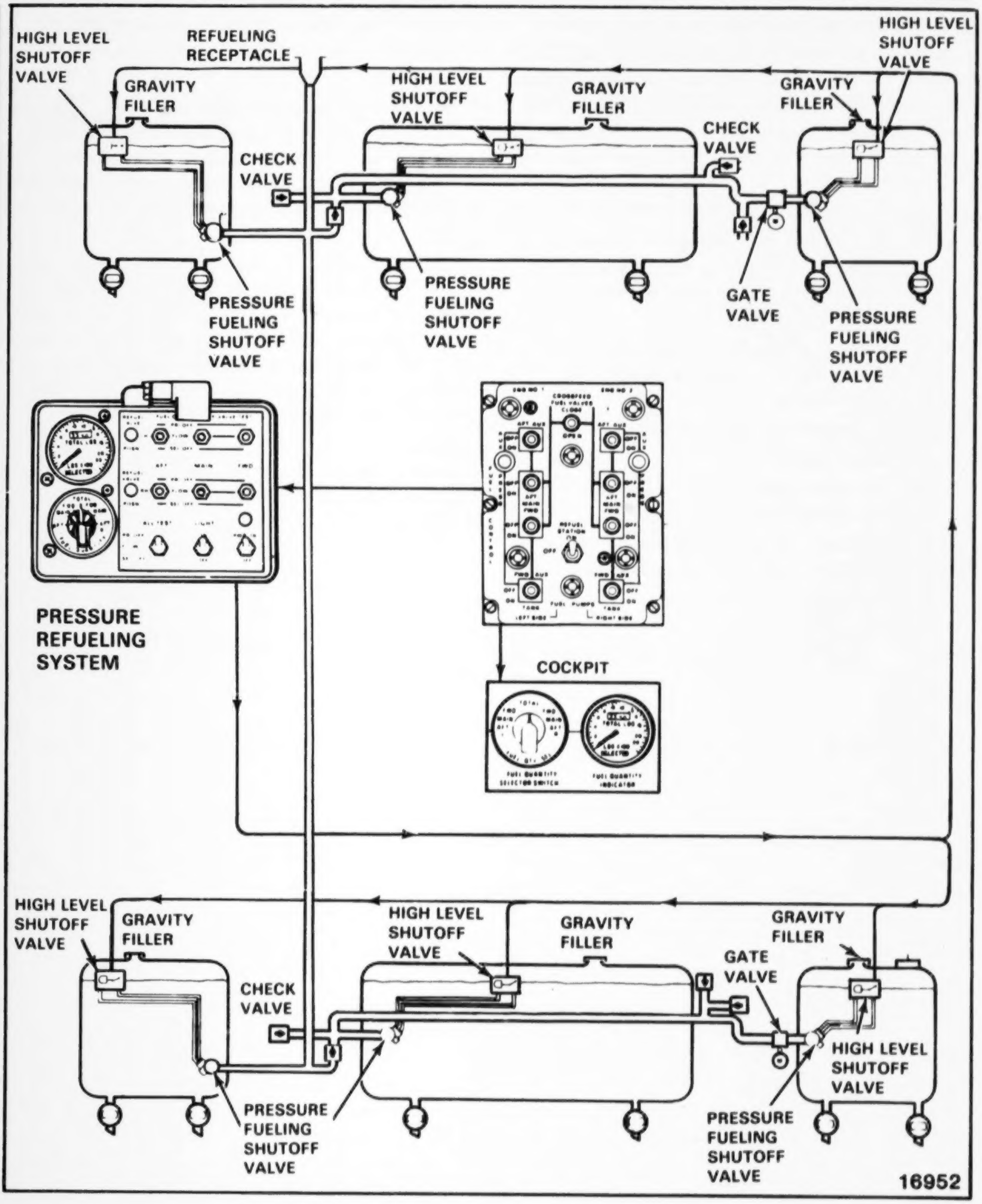
As fuel is added through the receptacle at the refuel station, the **pressure refueling valve** in each of the selected tanks is opened by fuel pressure. Fuel passes through a port in the valve into the tank.

As the fuel level within each tank rises, it lifts the floats of a **shutoff valve** in the tank. When the tank is full, increased pressure in the sensing lines between the shutoff valve and the refueling valve closes the refueling valve, shutting off fuel flow to that tank.

During refueling, the shutoff valves in any of the six tanks can be checked for proper operation by energizing one of the two (primary or secondary) solenoids on each valve by a switch on the refuel panel. Energizing the solenoid raises the float and closes the sensing line to the refuel valve. This shuts off fuel flow.

If desired, all shutoff valves can be checked at once by operating the ALL TEST switch on the refuel panel. This total system check is part of the normal refueling procedure.

GO TO NEXT PAGE

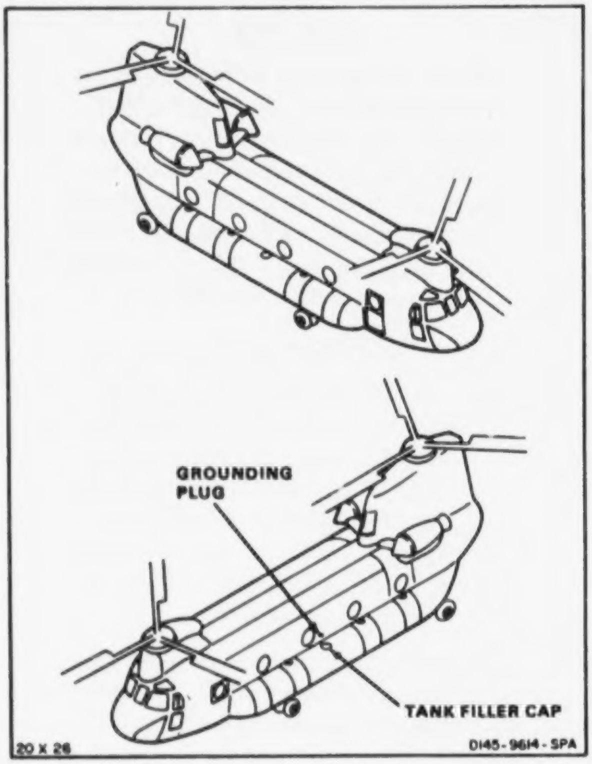

HIGH LEVEL SHUTOFF VALVE
REFUELING RECEPTACLE
GRAVITY FILLER
HIGH LEVEL SHUTOFF VALVE
GRAVITY FILLER
CHECK VALVE
HIGH LEVEL SHUTOFF VALVE
GRAVITY FILLER
CHECK VALVE
PRESSURE FUELING SHUTOFF VALVE
PRESSURE FUELING SHUTOFF VALVE
GATE VALVE
PRESSURE FUELING SHUTOFF VALVE
PRESSURE REFUELING SYSTEM
COCKPIT
HIGH LEVEL SHUTOFF VALVE
GRAVITY FILLER
HIGH LEVEL SHUTOFF VALVE
GRAVITY FILLER
GRAVITY FILLER
GATE VALVE
CHECK VALVE
HIGH LEVEL SHUTOFF VALVE
PRESSURE FUELING SHUTOFF VALVE
PRESSURE FUELING SHUTOFF VALVE
16952

END OF TASK

SECTION II
FUEL TANKS

10-2 PURGING OF FUEL TANK WITH INERT GAS 10-2

INITIAL SETUP



Applicable Configurations:
All

Tools:
Combustible Gas Indicator
CO_2, Technical 50 lb. Cylinder
Rubber Gloves
Respirator
Faceshield
Protective Clothing

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

References:
Task 10-3

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Fuel Tank Defueled (Task 10-34 or 10-35)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

GO TO NEXT PAGE

10-2 PURGING OF FUEL TANK WITH INERT GAS (Continued) 10-2

WARNING

When using a fire extinguisher as a source of CO_2 for purging fuel tanks, remove fiber horn. Ground nozzle as well as bottle itself to aircraft. Discharge CO_2 slowly to avoid generating static electricity and allowing rapid CO_2 expansion which could damage the cell.

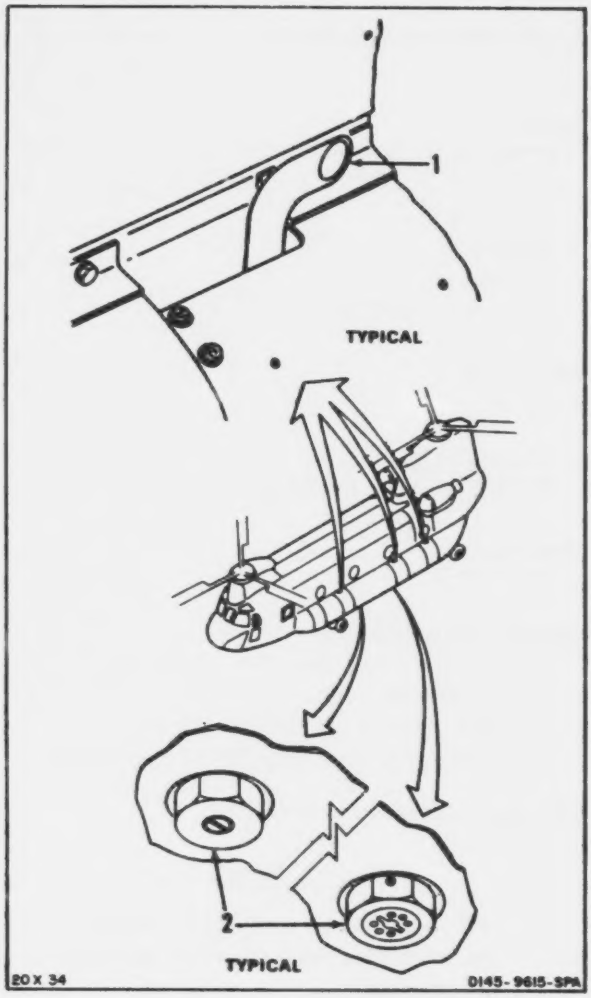
NOTE

- The size of CO_2 bottle used can vary to meet existing conditions, with 15 pound size handy to use. Total amounts recommended are based on quantities usually needed, but more may be needed to obtain a safe reading on combustible gas indicator.
- Nitrogen or other inert gas may be used instead of CO_2. Carefully observe above precautions.
- Procedure is same to purge any fuel tank. No. 1 (left) main fuel tank purging is shown here.

1. Make sure that tank vent (1) is clear of obstructions and plugs, and that tank drain valves (2) are installed and closed.

WARNING

While purging, each person shall wear protective clothing, a respirator, a full facepiece and rubber gloves. Perform the purging operation in an area isolated from personnel not concerned with purging.



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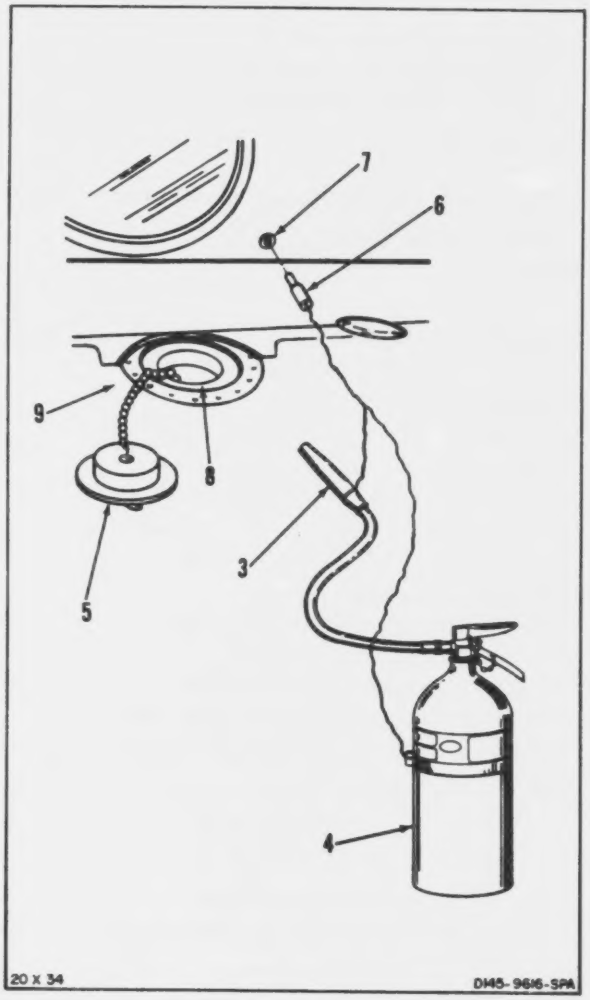
10-2 PURGING OF FUEL TANK WITH INERT GAS (Continued) 10-2

2. Remove horn from nozzle (3) of CO_2 bottle (4).
3. **Remove fuel tank filler cap (5).**
4. **Install grounding receptacle (6)** from nozzle (3) and bottle (4) **into helicopter plug (7).**
5. **Insert nozzle (3) into open filler hole (8)** in fuel tank (9). **Discharge bottle at a flow rate of 1 pound-per-minute.**

NOTE

Use two 15-pound CO_2 bottles to purge a main fuel tank. Use one 15-pound bottle for a forward or aft tank.

6. **Test purged tank (9).** Use a combustible gas indicator or equivalent tester. If level of fumes is not safe, purge until level is safe.
7. Remove grounding receptacle (6) from helicopter plug (7). Remove bottle (4).
8. If personnel will work within the tank, purge with air (Task 10-3).
9. Install tank filler cap (5).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-3 PURGING OF FUEL TANK WITH AIR

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Air Supply (80 to 120 Lbs. Per Sq. In.)

Lamb Air Remover

Combustible Gas Indicator

Grounded Air Blower

Materials:

Tape (E388)

Personnel Required:

67U10 Medium Helicopter Repairer

References:

Task 2-2

Task 10-51

Task 10-53

Task 10-69

Task 10-79

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Helicopter Grounded (Task 1-29)

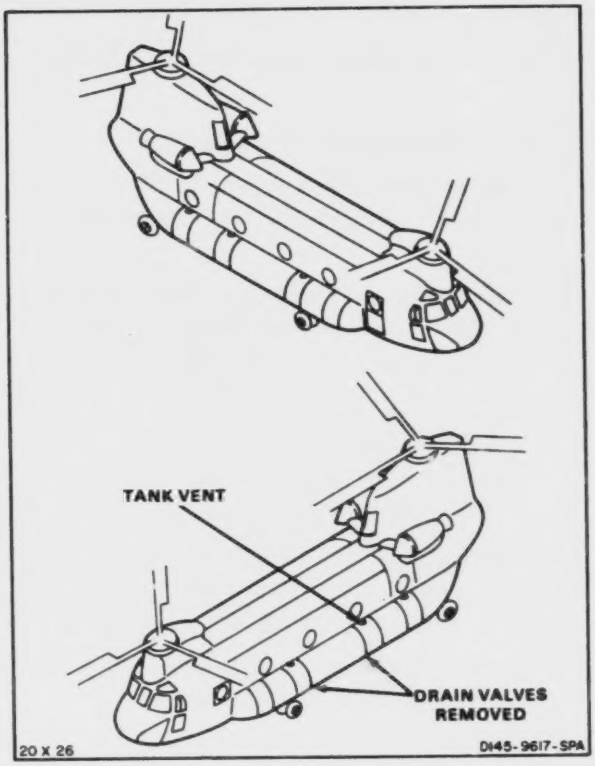
Fuel Tank Defueled (Task 10-34 or 10-35)

Two Tank Drain Valves Removed (Task 10-39)

General Safety Instructions:

WARNING

All regulations and instructions on handling fuels shall be strictly observed.

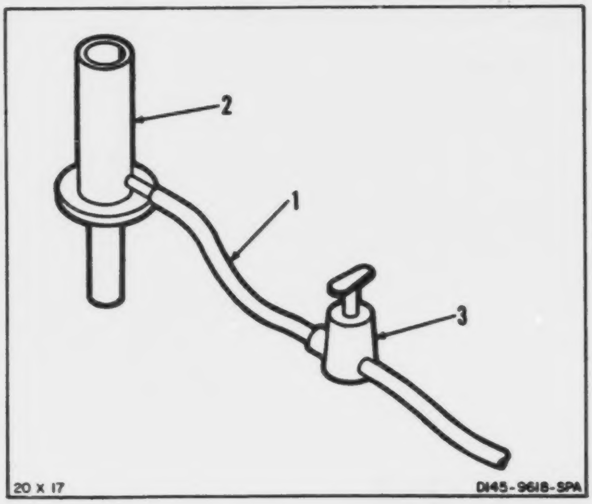


NOTE

Air purging forces fresh air into the defueled tank to replace fuel vapors.

Procedure is same to purge any fuel tank. No. 1 (left) main fuel tank purging is shown here.

1. **Connect air supply hose (1) to air mover (2).**
2. **Open air supply valve (3) slowly.**
3. **Allow air supply to flow to clear hose (1) and air mover (2).**
4. **Close air supply valve (3).**



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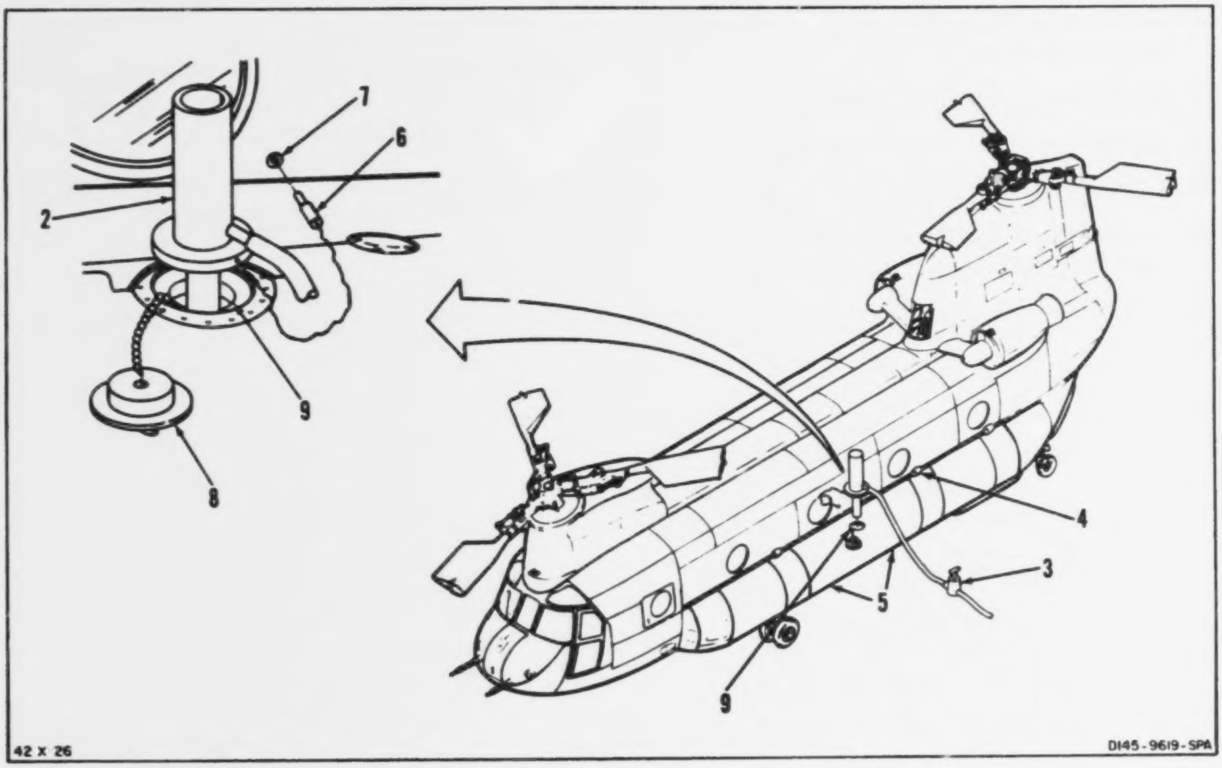
10-3 PURGING OF FUEL TANK WITH AIR (Continued) 10-3

5. Check that tank vent (4) and drain holes (5) are clear.
6. **Connect air mover ground receptacle (6)** to aircraft plug (7).
7. **Remove fuel tank filler cap (8).**
8. **Install air mover (2) into open filler hole (9).** Secure mover with tape (E388).
9. **Open air supply valve (3) fully.**

NOTE

If only the air mover is used, purging takes 24 hours. If more rapid purging is required do steps 11 thru 22.

10. **Test purged tank.** Use combustible gas indicator. If level of fumes is still dangerous, purge until level is safe.



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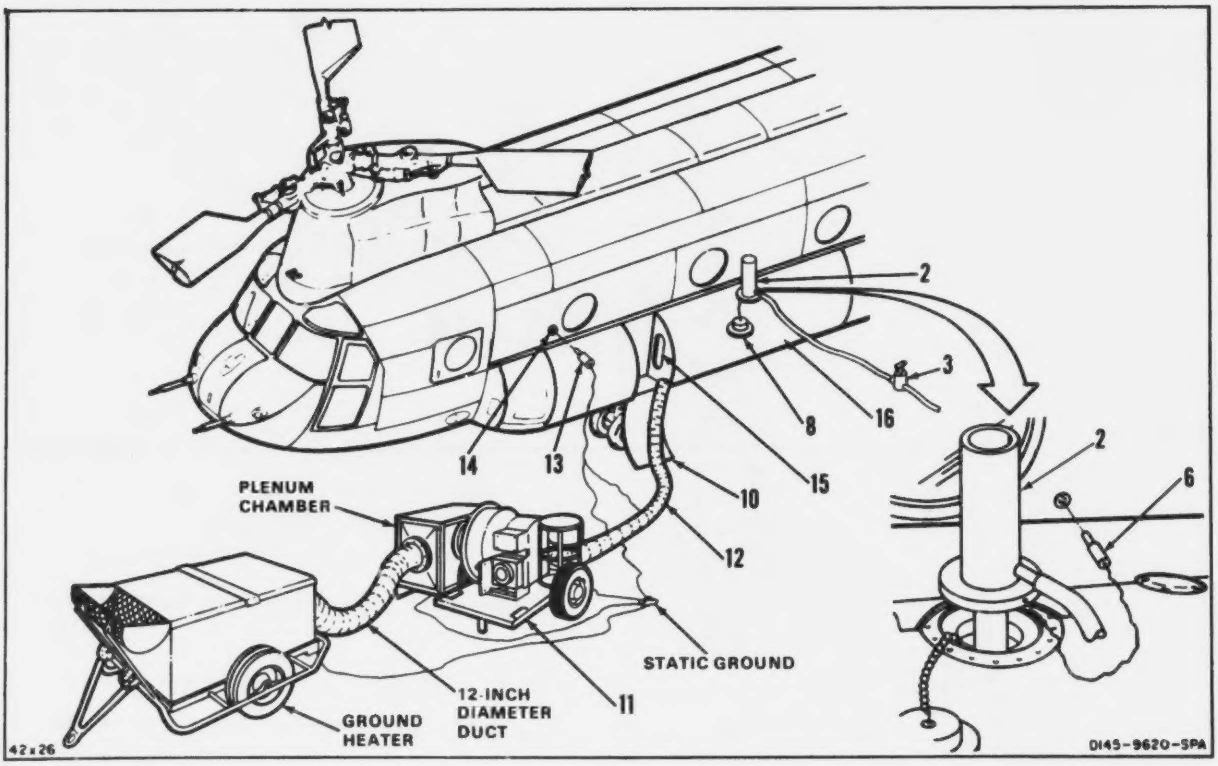
10-3 PURGING OF FUEL TANK WITH AIR (Continued) 10-3

WARNING

- If heater and plenum chamber are used with blower, start heater before connecting heater duct to plenum chamber.
- Do not shut off air flow while air duct is attached to helicopter.
- If power fails, remove duct and blower from area until normal air flow is restored.

11. Open pod access panel (10) for the tank being purged (Task 2-2).
12. Position and ground air blower (11).
13. Start blower (11) and air mover (2).
14. Connect duct (12) to blower.
15. Connect duct ground receptacle (13) to aircraft plug (14).
16. Position duct (12) to blow air at 45 degree angle across tank access door (15).
17. Remove tank access door (15), forward tank (Task 10-69), main tank (Task 10-51 or 10-53), and aft tank (Task 10-79).
18. Position duct (12) to blow into fuel tank (16) through access hole (15). Maintain use of air mover if working insdie fuel cell.
19. After 15 minutes remove air duct (12) from fuel tank (16). Shut down and remove air blower (10).
20. Test purged tank. Use a combustible gas indicator. If level of fumes is still dangerous, purge until level is safe.
21. Close supply valve (3). Remove air mover (2). Disconnect ground receptacle (6).

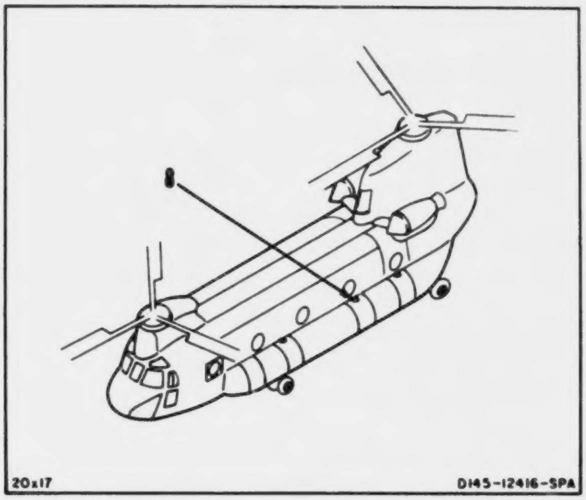


10-3 PURGING OF FUEL TANK WITH AIR (Continued) 10-3

22. Install tank filler cap (8).

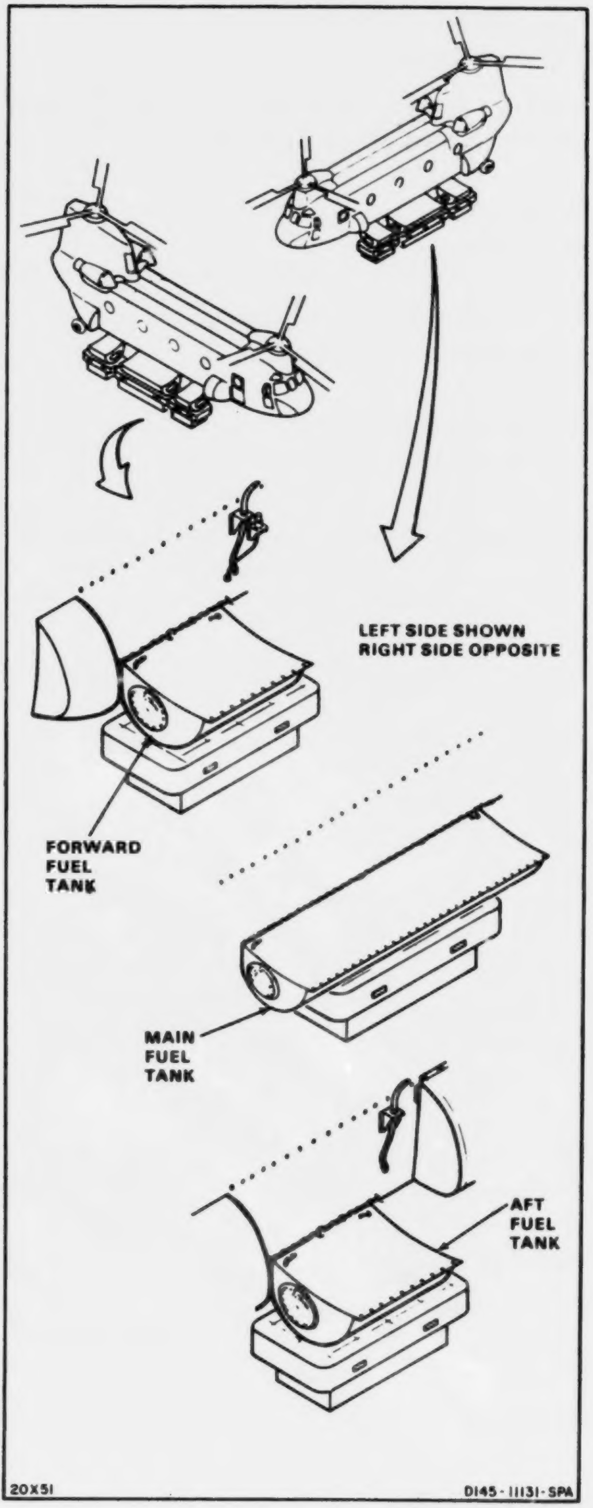
FOLLOW-ON MAINTENANCE:

When work on fuel tank is completed, install tank drain valves (Task 10-40).



END OF TASK

10-4 INSPECT FUEL TANK ASSEMBLIES 10-4


LEFT SIDE SHOWN
RIGHT SIDE OPPOSITE
FORWARD FUEL TANK
MAIN FUEL TANK
AFT FUEL TANK
20X51
D145-11131-SPA

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Helicopter Defueled (Task 10-34)
Fuel Tanks Purged (Task 10-2)
Forward Landing Gear Access Panels Removed (Task 2-178 and 2-180)
Aft Intertank Pod Panel Removed (Task 2-185)
Main Fuel Tank Vent Fairing Removed (Task 10-63)
Main Fuel Tanks Lowered (Task 10-6)
Forward Fuel Tanks Lowered (Task 10-23)
Aft Fuel Tanks Lowered (Task 10-28)
Main Tank Forward and Aft Access Doors Removed (Task 10-51 and 10-53)
Forward Tank Forward Access Door Removed (Task 10-69)
Aft Tank Forward Access Door Removed (Task 10-79)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

GO TO NEXT PAGE

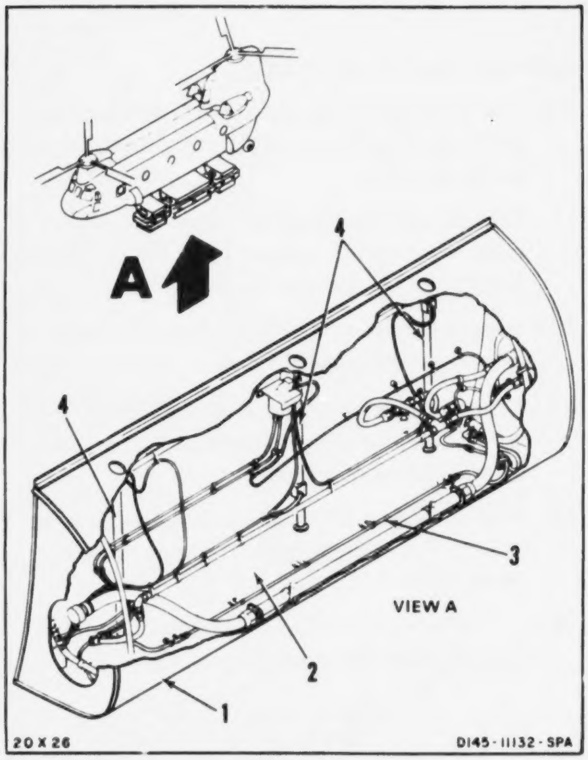
10-4 INSPECT FUEL TANK ASSEMBLIES (Continued) 10-4

NOTE

Procedure is same to inspect left or right fuel tank assemblies. Left tanks are shown here.

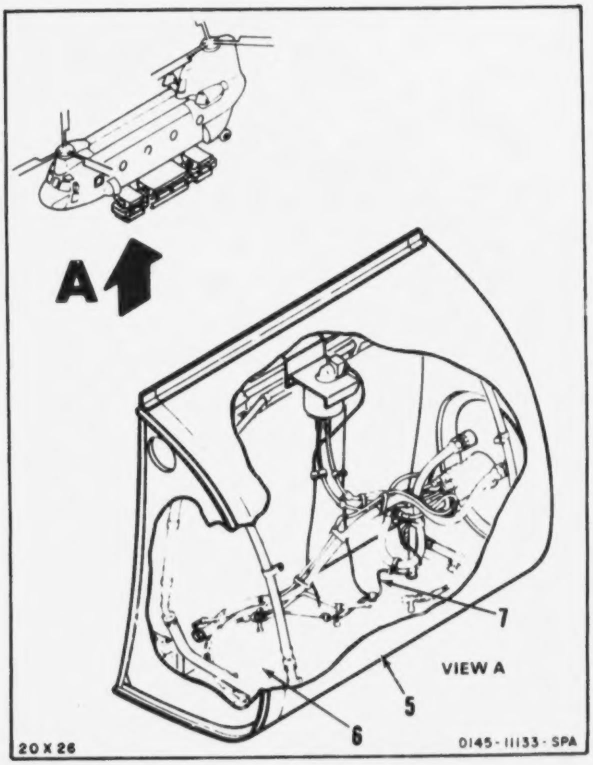
INSPECT MAIN FUEL TANK

1. **Check interior of main pod (1).** There shall be no damage, layer separation, leakage, or contamination.
2. **Check cell (2).** There shall be no damage, layer separation, no fuel in self-sealing layers, and no green, sponge-like material.
3. **Check interior of cell (2).** Interior shall not be contaminated with mold.
4. **Check exterior surfaces of cell (2).** Anti-chafing tape shall be secure, and there shall be no chafing damage.
5. **Check hoses, fittings, and tubing** inside tank (2). There shall be no damage or deterioration.
6. Check vent drain lines (3). Lines must not have high or low spots that can trap fluid.
7. Check probes (4). Hoses and tubing must not contact probes under normal movement.



INSPECT FORWARD FUEL TANK

8. **Check interior of forward pod (5).** There shall be no damage, layer separation, leakage, or contamination.
9. **Check cell (6).** There shall be no damage, layer separation, no fuel in self-sealing layers, and no green, sponge-like material.
10. **Check interior of cell (6).** Interior shall not be contaminated with mold.
11. **Check exterior surface of cell (6).** Anti-chafing tape (E381) shall be secure, and there shall be no chafing damage.
12. **Check hoses, fittings, and tubing** inside cell (6). There shall be no damage or deterioration.
13. Check vent drain lines (7). Lines must not have high or low spots that can trap fluid.



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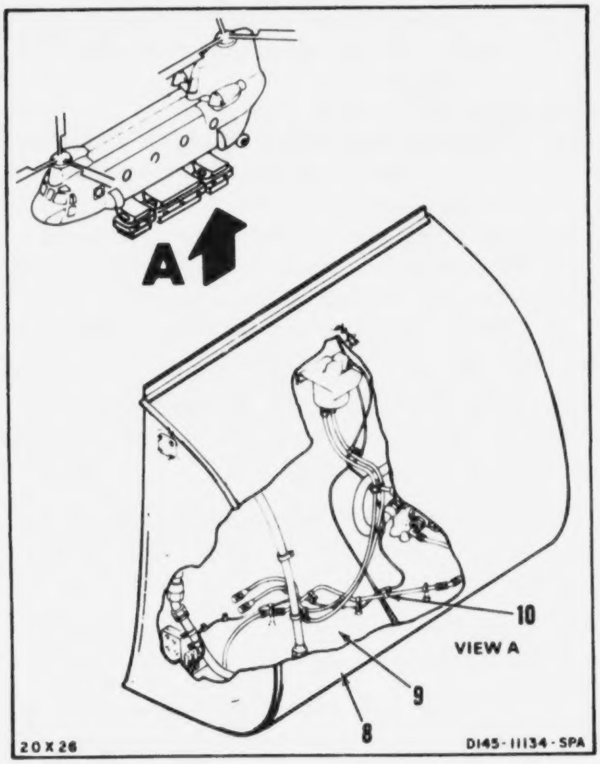
10-4 INSPECT FUEL TANK ASSEMBLIES (Continued) 10-4

INSPECT AFT FUEL TANK

14. **Check interior of aft pod (8).** There shall be no damage, layer separation, leakage, or contamination.
15. **Check cell (9).** There shall be no damage, layer separation, no fuel in self-sealing layers, and no green, sponge-like material.
16. **Check interior of cell (9).** Interior shall not be contaminated with mold.
17. **Check exterior surface of cell (9).** Anti-chafing tape shall be secure, and there shall be no chafing damage.
18. **Check hoses, fittings, and tubing** inside cell (9). There shall be no damage or deterioration.
19. Check vent drain lines (10). Lines must not have high or low spots that can trap fluid.



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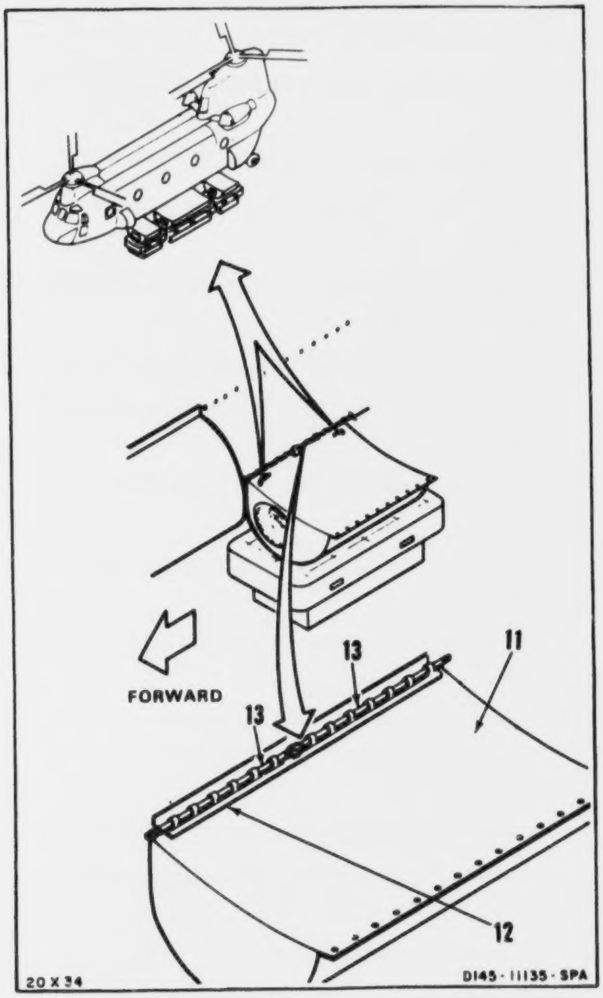
10-4 INSPECT FUEL TANK ASSEMBLIES (Continued) 10-4

20. **Check support structure (11).** Support structure shall not be damaged.
21. Check hinges (12) and hinge pins (13). Hinges and pins shall not be worn or damaged.


FORWARD
13
13
11
12
20 X 34
D145-11135-SPA

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10-4 INSPECT FUEL TANK ASSEMBLIES (Continued)

FOLLOW-ON MAINTENANCE:

Perform vent system pressure test (Task 10-117).

Install aft tank access doors (Task 10-80).

Install forward tank access doors (Task 10-70).

Install main tank access doors (Task 10-52 and 10-54).

Raise and install aft fuel tanks (Task 10-31).

Raise and install forward fuel tanks (Task 10-26).

Raise and install main fuel tanks (Task 10-21).

Install main fuel tank vent fairings (Task 10-64).

Perform vent system flow test (Task 10-118).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Install aft intertank pod panels (Task 2-188).

Close forward landing gear access panels (Task 2-179 and 2-181).

Service fuel tanks (Task 1-51).

Bleed fuel system (Task 10-121).

END OF TASK

10-5 INSPECT FUEL TANKS — HARD LANDING 10-5

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

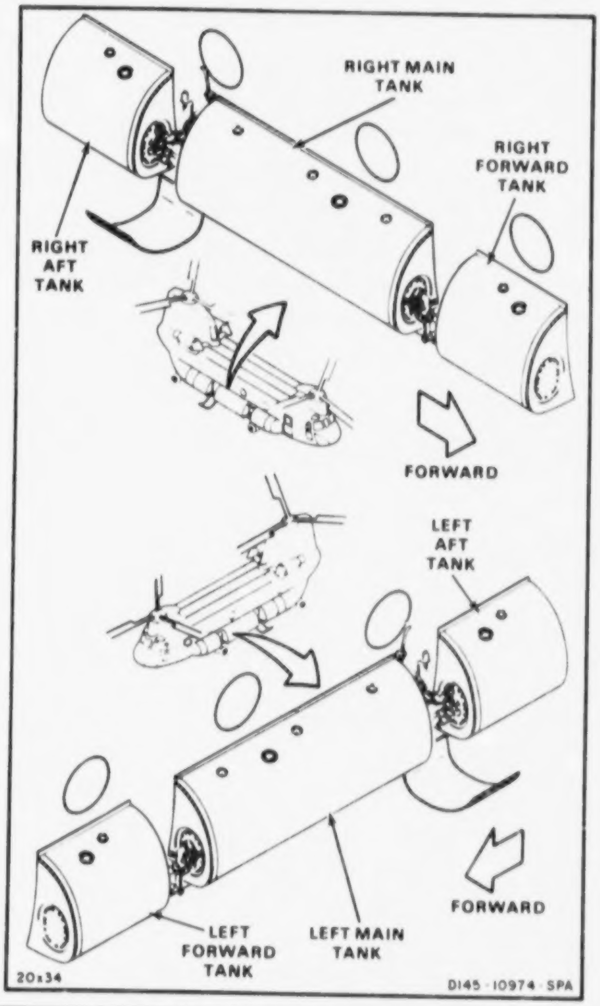
References:
Task 10-118
TM 55-1520-240-T

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Helicopter Grounded (Task 1-29)
Aft Intertank Pod Panels Opened (Task 2-185)
Forward Landing Gear Access Doors Opened (Task 2-2)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


RIGHT MAIN TANK
RIGHT FORWARD TANK
RIGHT AFT TANK
FORWARD
LEFT AFT TANK
FORWARD
LEFT FORWARD TANK
LEFT MAIN TANK
20x34
D145-10974-SPA

NOTE

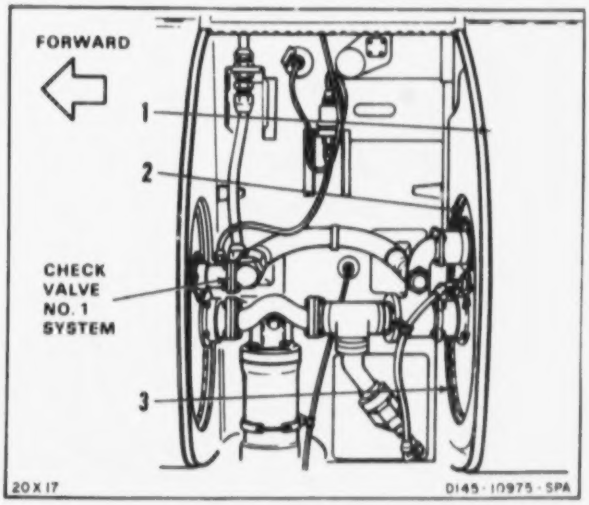
Procedure is similar to inspect either main fuel tank after suspected hard landing. Left side tank is shown here.

INSPECT MAIN FUEL TANK

1. **Check main fuel tank (1)** as follows:
    a. Check forward access door (2). Door shall be secure, and there shall be no missing bolts (3).

NOTE

Fittings in doors will shear under high loads.


FORWARD
1
2
CHECK VALVE NO. 1 SYSTEM
3
20X17
D145-10975-SPA

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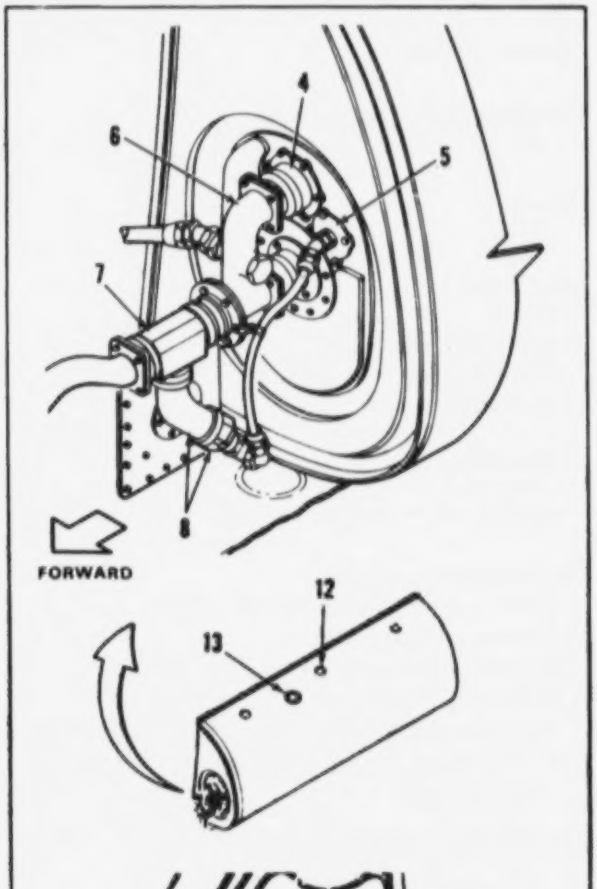
10-5 INSPECT FUEL TANKS — HARD LANDING (Continued) 10-5

b. Check forward breakaway fittings (4 and 5). Fittings shall be secure.

c. Check manifold (6), tee (7), and two elbows (8). Manifold, tee, and two elbows shall be secure.

d. Check aft breakaway fittings (9, 10, and 11). Fittings shall be secure.

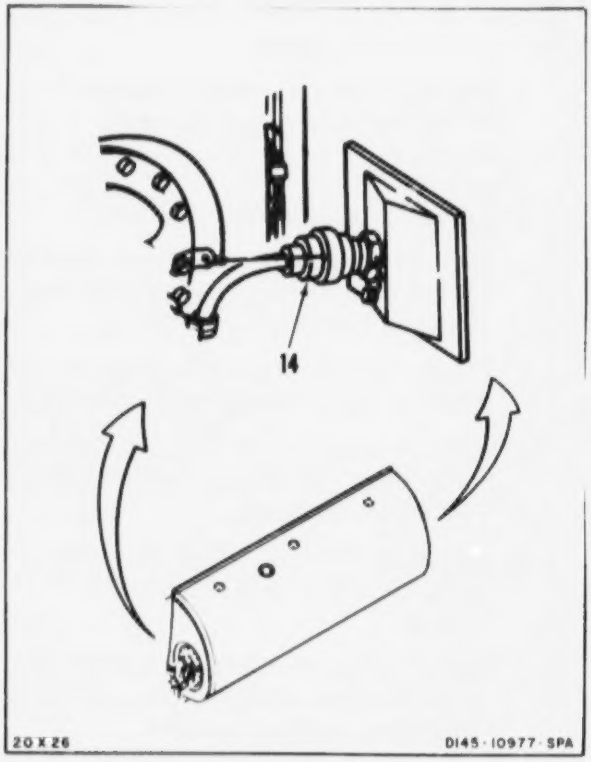
e. Check areas around three tank units (12) and tank filler adapter (13). There shall be no missing rivets.


4
6
5
7
8
FORWARD
12
13
10
9
11
AFT
20X51
0145-10976-SPA

GO TO NEXT PAGE

10-5 INSPECT FUEL TANKS — HARD LANDING (Continued) 10-5

f. Check two lanyard-release electrical connectors (14). Connectors shall be secure.

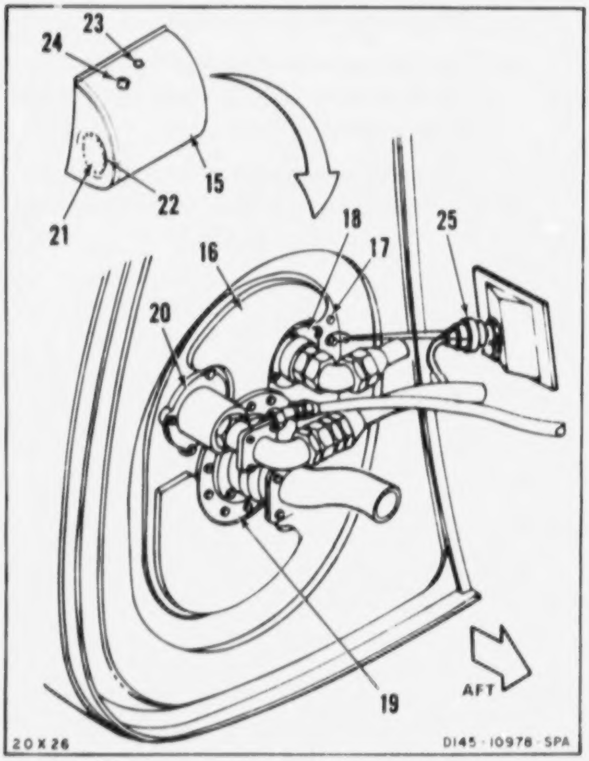


INSPECT FORWARD FUEL TANK

NOTE

Procedure is same to inspect either forward fuel tank after suspected hard landing. Left side tank is shown here.

2. **Check forward fuel tank (15)** as follows:
   - a. Check access door (16) on aft end of tank (15). Door shall be secure and there shall be no missing bolts (17).
   - b. Check fittings (18, 19, and 20) on aft end of tank (15). Fittings shall be secure.
   - c. Check access door (21) on forward end of tank. Door shall be secure and there shall be no missing bolts (22).
   - d. Check areas around tank unit (23) and tank filler adapter (24). There shall be no missing rivets.
   - e. Check lanyard-release electrical connector (25). Connector shall be secure.



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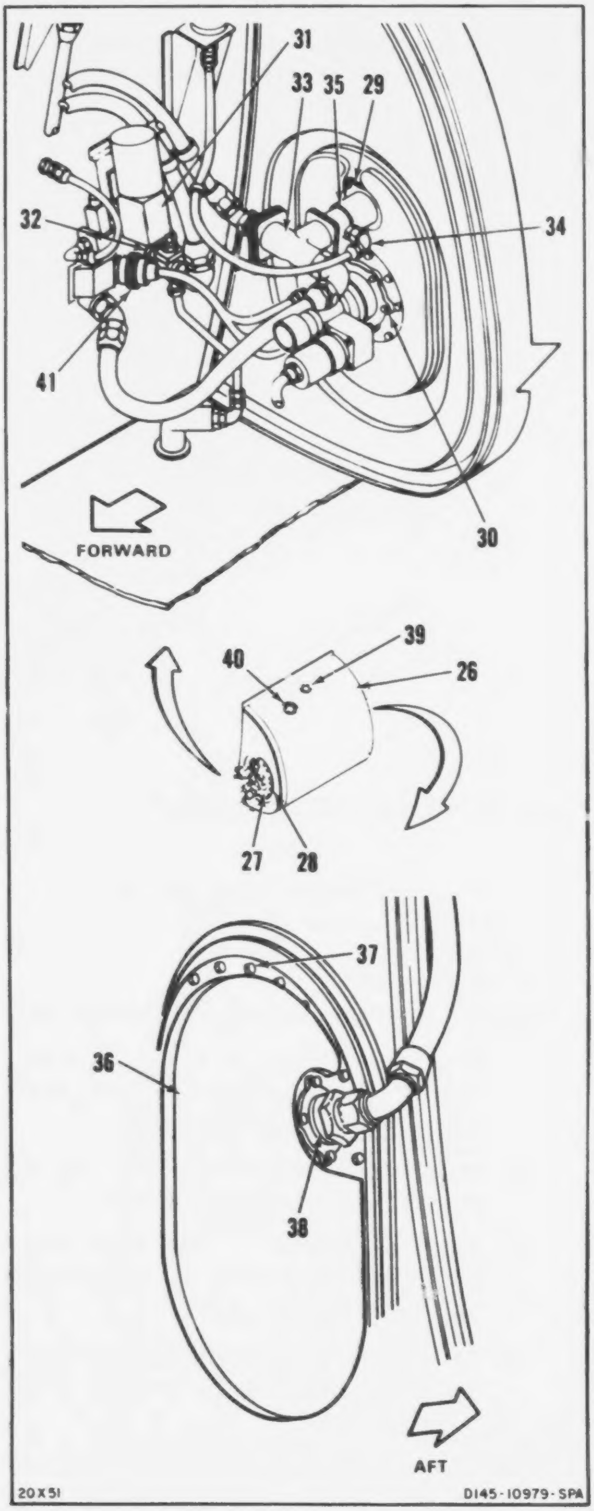
10-5 INSPECT FUEL TANKS — HARD LANDING (Continued) 10-5

INSPECT AFT FUEL TANK

NOTE

Procedure is same to inspect either aft fuel tank after suspected hard landing. Right side tank is shown here.

3. **Check aft fuel tank (26)** as follows:
   - a. Check access door (27) on forward end of tank (26). Door shall be secure, and there shall be no missing bolts (28).
   - b. Check fittings (29 and 30) on forward end of aft tank (26). Fittings shall be secure.
   - c. Check auxiliary power unit pump (31) and valve (32) on left aft tank (26) only. Pump and valve shall be secure.
   - d. Check tee (33), elbow (34), and valve (35). Tee, elbow, and valve shall be secure.
   - e. Check access door (36) on aft end of aft tank (26). Door shall be secure, and there shall be no missing bolts (37).
   - f. Check fitting (38) on aft end of aft tank (26). Fitting shall be secure.
   - g. Check areas around tank unit (39) and tank filler adapter (40). There shall be no missing rivets.
   - h. Check lanyard-release electrical connector (41). Connector shall be secure.



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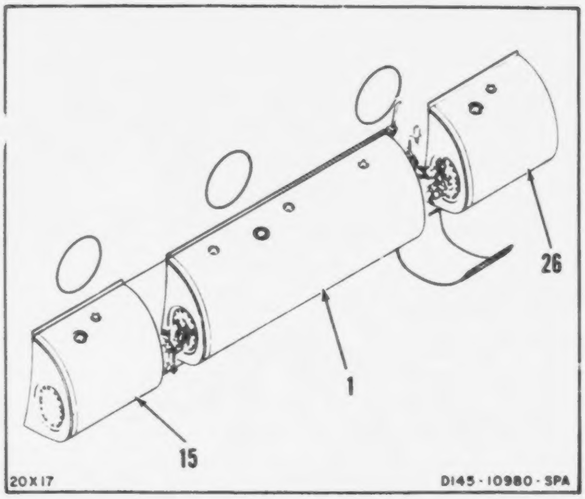
10-5 INSPECT FUEL TANKS — HARD LANDING (Continued) 10-5

4. **Repeat step 1 for other main tank (1).**
5. **Repeat step 2 for other forward tank (15).**
6. **Repeat step 3 for other aft tank (26).**
7. Perform vent system flow check (Task 10-118).
8. **Perform boost pump operational check** (TM 55-1520-240-T). **Check L FUEL PRESS or R FUEL PRESS lights** on master caution panel. If light stays on, this indicates fitting failure in engine feed line on main tank (1). If **AUX PRESS light** stays on, this **indicates fitting failure in transfer line** from forward or aft tank (15 or 26).
9. **Check all hoses and tubes.** Hoses and tubes shall be secure.



INSPECT

FOLLOW-ON MAINTENANCE:

Perform vent system flow test (Task 10-118).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Install aft intertank pod panels (Task 2-188).

Close forward landing gear access doors (Task 2-2).

END OF TASK

10-6 REMOVE MAIN FUEL TANK 10-6

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Padded Support
Open End Wrench, 1 1/2-Inch
Open End Wrench, 1 7/8-Inch

Materials:
Cloths (E135)
Penetrating Lubricant (E236)
Barrier Material (E80)
Tape (E388)

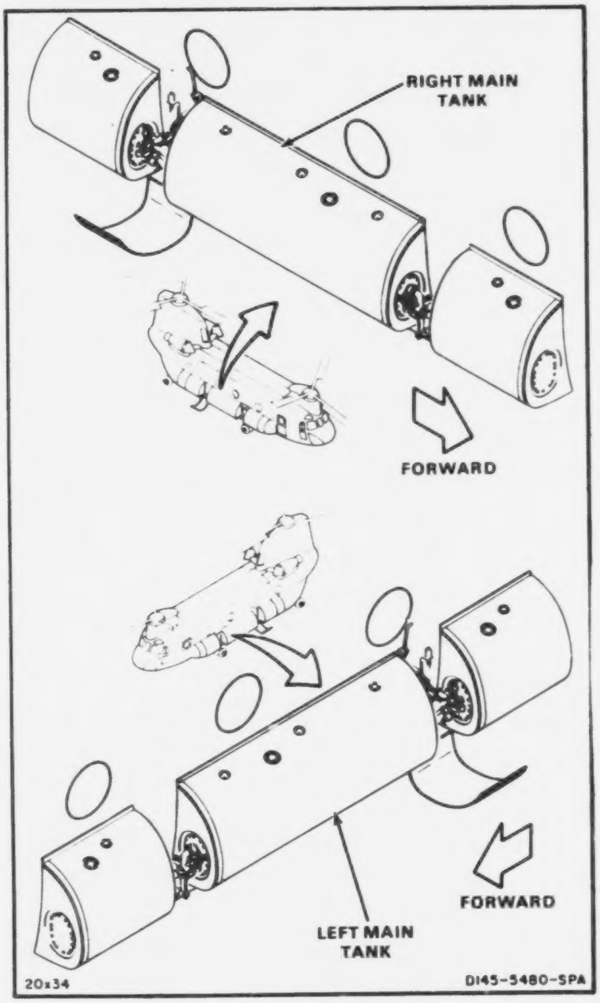
Personnel Required:
67U10 Medium Helicopter Repairer (2)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Main Fuel Tank Defueled (Task 10-34 or 10-35)
Forward Landing Gear Access Panel Removed (Task 2-178 or 2-180)
Aft Intertank Pod Panel Opened (Task 2-185)
Main Fuel Tank Vent Fairing Removed (Task 10-63)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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10-6 REMOVE MAIN FUEL TANK (Continued) 10-6

NOTE

Procedure is same to remove main fuel tank in No. 1 or No. 2 fuel system. Removal of No. 1 (left) tank is shown here.

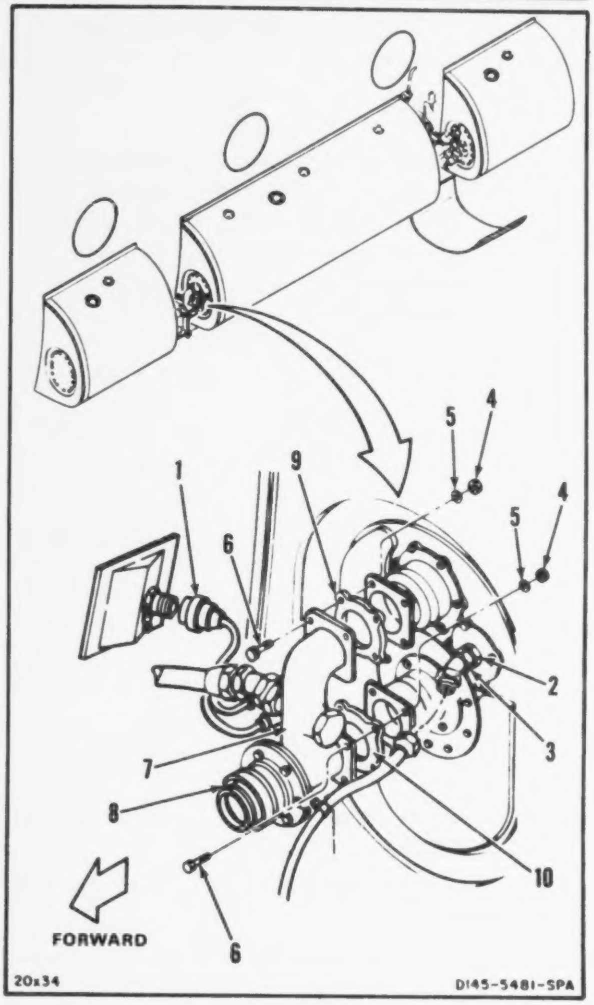
LOWER MAIN FUEL TANK ON HINGES

1. Remove lockwire. **Disconnect electrical connector (1).**

CAUTION

When disconnecting fuel hoses from access door, do not allow fittings to turn. Otherwise, access door fittings can fail and cause fuel blockage.

2. Hold fitting (2) with wrench and **disconnect hose (3).** Catch spilled fuel. Use grounded container. Plug hose and cap fitting.
3. **Remove eight** nuts (4), washers (5) and **bolts (6).**
4. Slide manifold (7) forward into adapter (8).
5. **Remove gaskets (9 and 10).**



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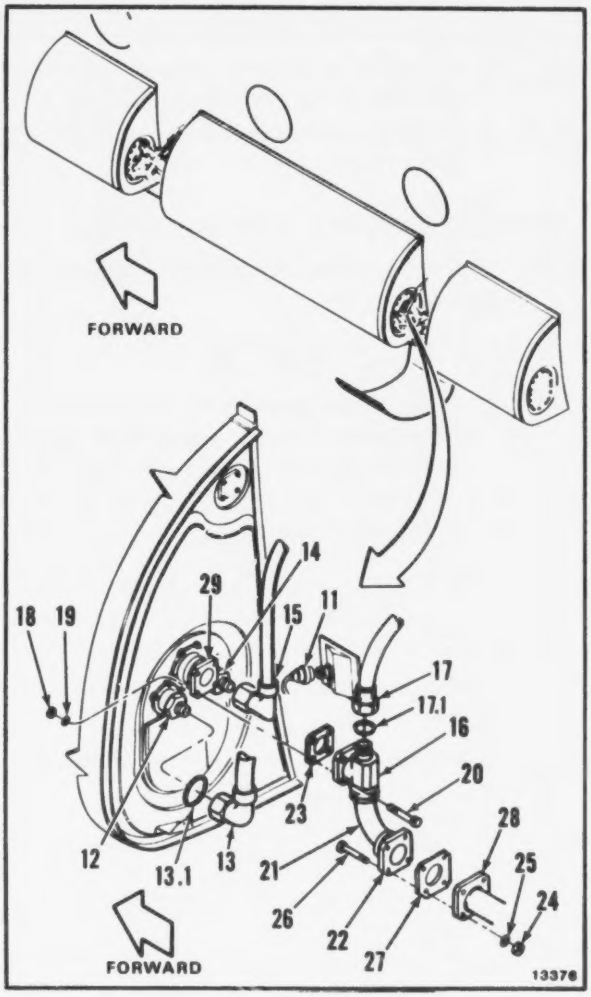
6. Remove lockwire. **Disconnect electrical connector (11).**

CAUTION

Do not allow elbow or fittings to turn when disconnecting fuel hoses from fittings on aft access panel. Otherwise, access door fittings can fail and cause fuel blockage.

7. Hold fitting (12) with wrench and **disconnect hose (13).** Catch spilled fuel. Use grounded container. Remove conical seal (13.1). Plug hose and cap fitting.
8. Hold fitting (14) with wrench and **disconnect hose (15).** Plug hose and cap fitting.
9. Hold tee (16) with wrench and **disconnect hose (17).** Remove conical seal 17.1. Plug hose and cap tee.
10. **Remove four** nuts (18), washers (19) and **bolts (20).**
11. Slide elbow (21) aft into adapter (22). **Remove gasket (23).**
12. **Remove four** nuts (24), washers (25), and **bolts (26).**
13. **Remove elbow (21), tee (16), and gasket (27).**
14. Cover holes in flanges (28 and 29). Use barrier material (E80) and tape (E388).



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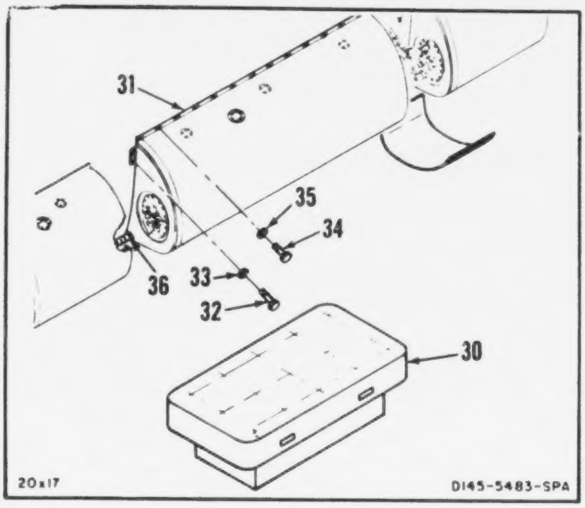
10-6 REMOVE MAIN FUEL TANK (Continued) 10-6

15. **Position padded support (30)** at side of tank (31). Top of support should be approximately 24-inches below bottom of fuselage.
16. **Remove four bolts (32)** and washers (33).
17. With aid from helpers, **support tank (31). Remove 37 bolts (34)** and washers (35).
18. Lower tank (31) on hinge (36) onto padded support (30).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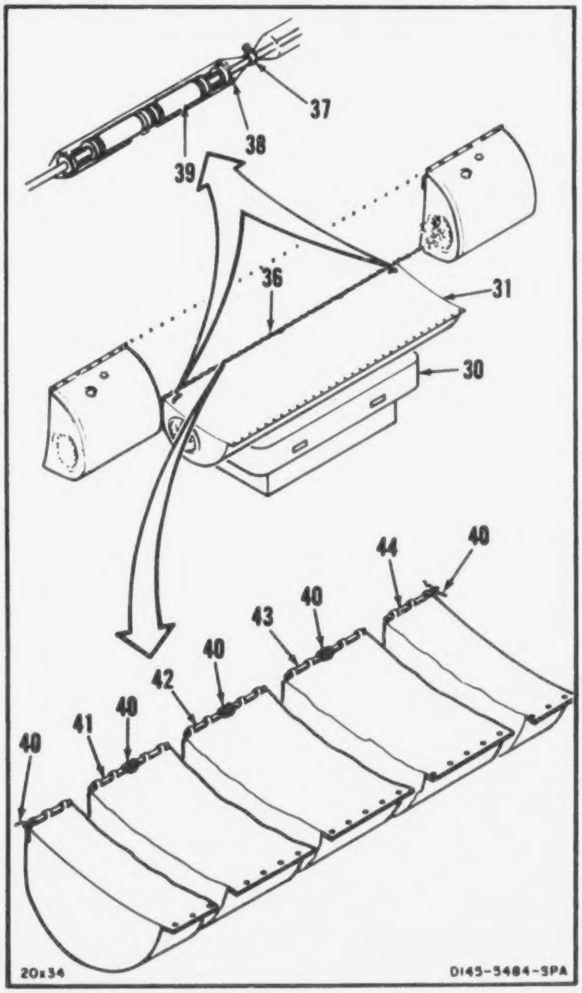
REMOVE MAIN FUEL TANK

19. **Remove two straps (37)** securing sleeves (38).
20. **Disconnect two cable plugs (39).**
21. Spray hinge (36) with penetrating lubricant (E236).
22. Remove lockwire at five places (40) and **remove four hinge pins (41, 42, 43 and 44).**
23. **Remove tank (31).**
24. Clean up spilled fuel. Use cloths (E135).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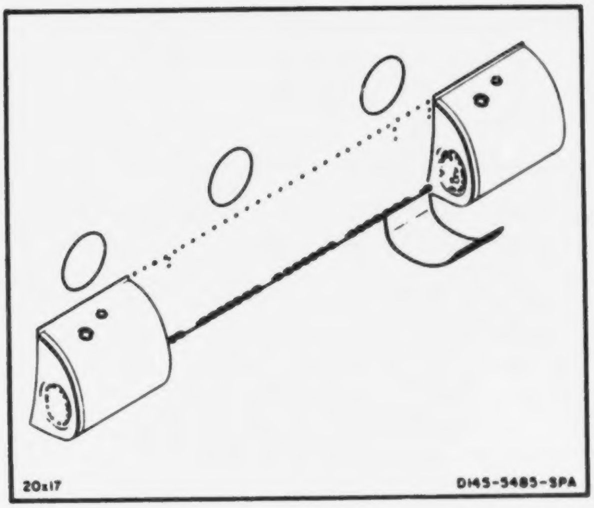
10-6 REMOVE MAIN FUEL TANK (Continued) 10-6

FOLLOW-ON MAINTENANCE:

None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END OF TASK

10-7 REMOVE MAIN FUEL TANK CELL 10-7

INITIAL SETUP

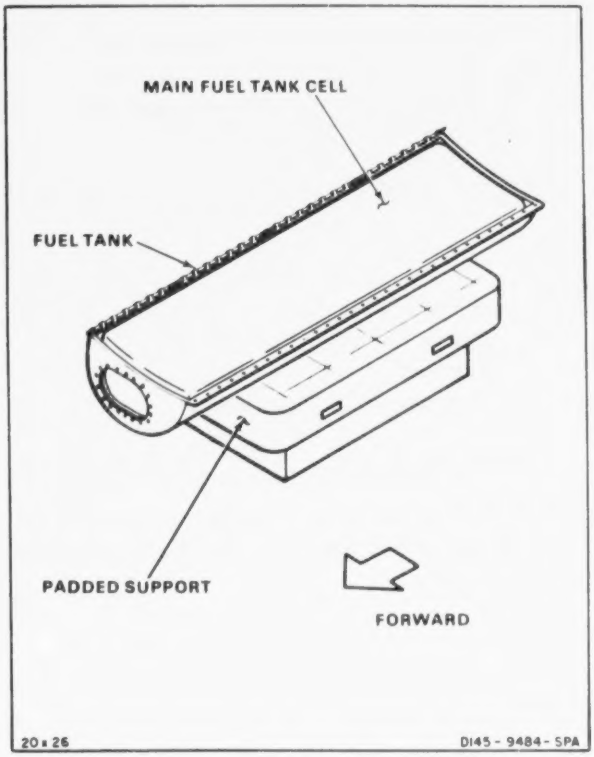
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
- Main Fuel Tank Removed (Task 10-6)
- Main Fuel Tank Forward Boost Pump and Check Valve Removed (Task 10-51)
- Main Fuel Tank Aft Boost Pump and Check Valve Removed (Task 10-53)
- Main Tank Fuel Lines and Electrical Wiring Removed (Task 10-41)
- Main Fuel Tank Vent Assembly Removed (Task 10-43)
- Fuel Level Control Valve and Mounting Bracket Removed (Task 10-59)
- Tank Drain Valves Removed (Task 10-39)



General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.

CAUTION

Do not puncture or scratch lining of fuel cell. If lining is broken, fuel penetrates and activates self sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel cell and flush fuel system.

GO TO NEXT PAGE

10-7 REMOVE MAIN FUEL TANK CELL (Continued) 10-7

NOTE

Procedure is same to remove cell from No. 1 or No. 2 fuel tank. Removal of No. 1 (left) cell is shown here.

REMOVE TWO BOOST PUMP BRACKETS

NOTE

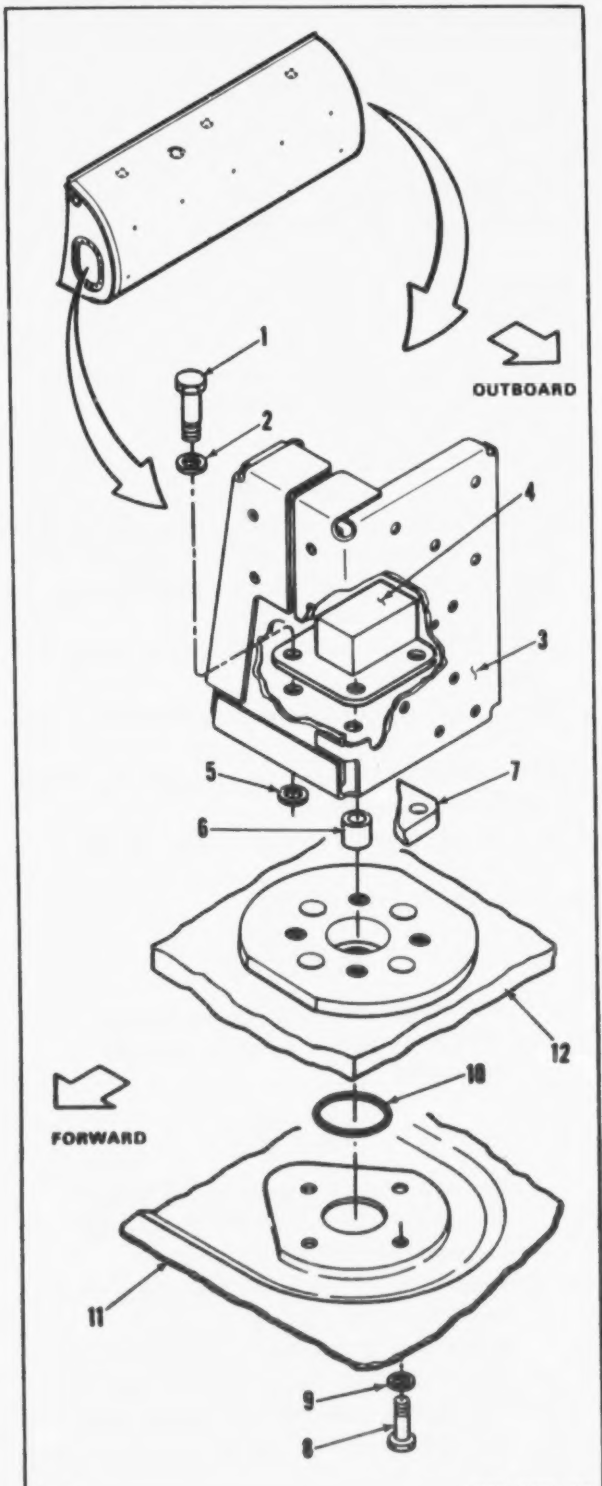
Procedure is same to remove forward and aft boost pump mounting bracket. Removal of forward mounting bracket is shown here.

1. **Remove four bolts (1)** and washers (2).
2. **Remove pump bracket (3). Remove flange assembly (4) on aft pump bracket.**

NOTE

Four different types of main fuel cells are used on the helicopter. Each is interchangeable but requires a different washer, bushing or adapter between pump bracket and cell.

3. **Remove four washers (5), or four bushings (6) or adapter (7).**
4. **Remove four bolts (8)** and washers (9).
5. **Remove packing (10)** between fuel pod (11) and fuel cell (12).



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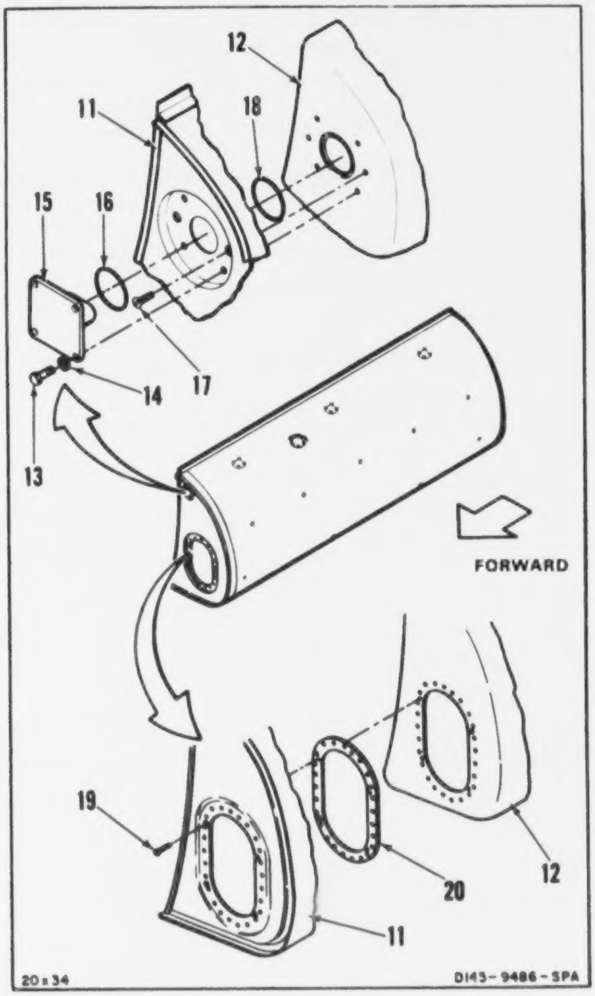
10-7 REMOVE MAIN FUEL TANK CELL (Continued) 10-7

6. **Remove four bolts (13)** and washers (14). **Remove closure plate (15) and packing (16)** at each end.
7. **Remove two screws (17) and packing (18) at each end.**
8. **Remove four screws (19). Remove gasket (20)** between fuel pod (11) and fuel cell (12).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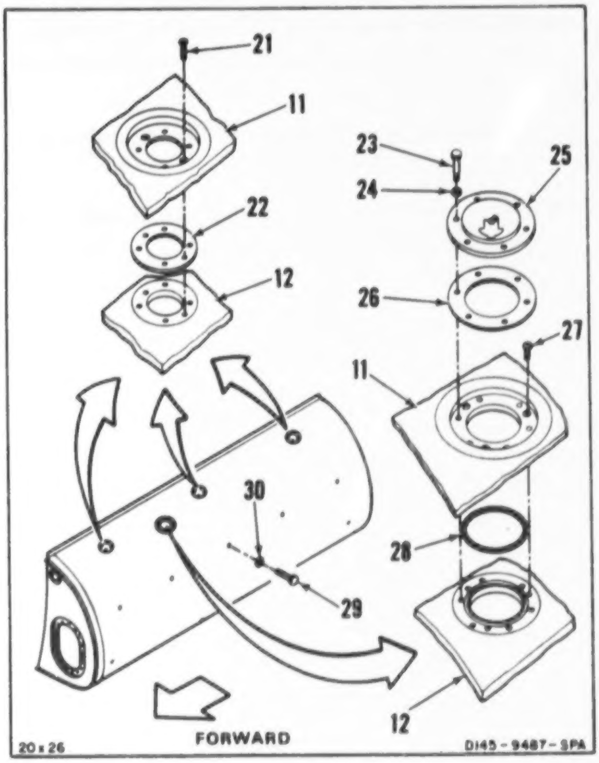
10-7 REMOVE MAIN FUEL TANK CELL (Continued) 10-7

9. **Remove six screws (21).** Separate fuel cell (12) from fuel pod (11). **Remove three gaskets (22).**
10. **Remove six bolts (23)** and washers (24).
11. **Remove filler adapter assembly (25) and gasket (26).**
12. **Remove three screws (27).** Separate fuel cell (12) from fuel pod (11). **Remove packing (28).**
13. **Remove five bolts (29)** and washers (30).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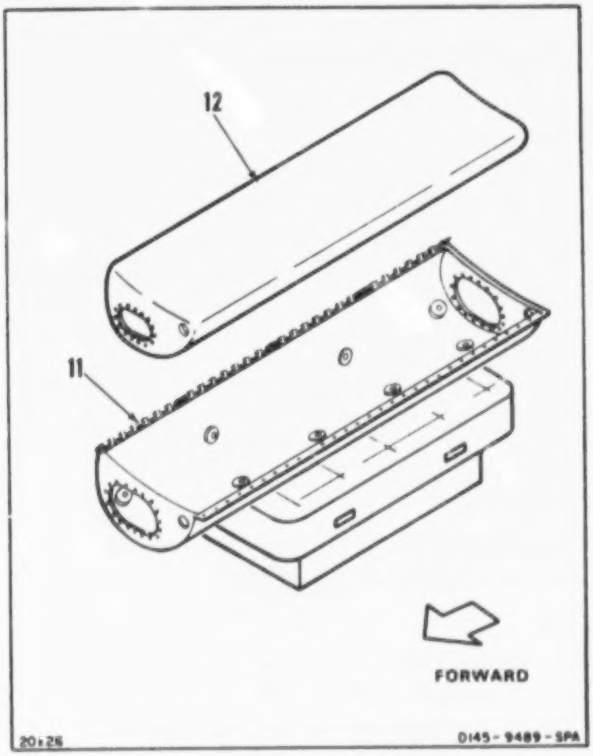
10-7 REMOVE MAIN FUEL TANK CELL (Continued) 10-7

14. Carefully **remove fuel tank cell (12) from pod structure (11).**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FOLLOW-ON MAINTENANCE:
None

END OF TASK

10-8 CLEANING OF FUEL CELL

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloths (E135)
Vinegar (E436)
Barrier Material (E80)
Tape (E388)

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

Equipment Condition:
As Required

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

1. **Wash contaminated area of tank.** Use cloths (E135) wet with a 50-50 solution of water and vinegar (E436).
2. **Wipe cleaned area dry.** Use cloths (E135).
3. **Make sure interior of cell is free of lint and other foreign material.**

INSPECT

4. **Cover all holes in cell.** Use barrier material (E80) and tape (E388) as necessary.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-9 FUEL CELL PRECAUTIONARY CRITERIA — GENERAL INFORMATION

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

References:
Task 10-18

Equipment Condition:
As Required

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

1. The following precautions shall be observed before and during removal, cleaning, repair and testing of fuel tank cells.

CAUTION

Do not puncture or scratch lining of fuel cell. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel cell and flush fuel system.

a. Work only in approved areas with adequate ventilation and where emergency equipment can move freely. Initial deactivation must be done out-of-doors.

b. Be careful when handling fuel cell at temperatures below 20°F (-6.67°C) to prevent cracking molded sections.

c. Make sure fuel cell and all cleaning, repair, and test equipment are properly grounded.

d. Do not enter cell unless another man is available as safety monitor.

e. Do not enter fuel cell wearing shoes, or with tools in your pockets.

f. Do not allow hot work lamps to contact fuel cell. If possible, use fluorescent lamps for work inside cell.

g. Do not expose fuel cell to any source of strong light for a long period.

h. Protect fuel cell at all times from sharp objects and from extremes of temperature and humidity.

i. Preserve any fuel cell that will not be returned to service in 10 days to prevent cracking of inner walls (Task 10-18).

FOLLOW-ON MAINTENANCE:

As Required.

END OF TASK

10-10 FUEL CELL DAMAGE — CLASSIFICATION AND REPAIR LIMITS (GENERAL INFORMATION) 10-10

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
Inspector

References:

Task 10-7	Task 10-15
Task 10-8	Task 10-15.1
Task 10-11	Task 10-24
Task 10-12	Task 10-29
Task 10-14	

Equipment Condition:
Off Helicopter

CAUTION

Remove fuel cell from helicopter and clean before doing any repair (Task 10-7, 10-24 or 10-29 and 10-8).

1. Classify fuel cell damage as follows:

MINOR DAMAGE

2. No repair is required if damage is confined to:
   a. Blisters less than 1 inch diameter.
   b. Loose lap seam with 1 inch (minimum) effective seal after removal or loose edges.

REPARABLE DAMAGE

3. Damage that is reparable is classified as follows:
   a. Blister Damage. Blisters exceeding 1 inch diameter must be repaired. Cut away the blister and apply an internal or an external cover patch, depending upon the blister location (Task 10-11 and 10-15).
   b. Loose Seam Damage. A loose seam having less than 1 inch of effective seal must be repaired. Remove the loose edges and apply an internal or an external reinforced cover patch depending upon the loose seam location (Task 10-12 and 15.1).
   c. Cuts, Tears, Chafing or Snag Damage. All cuts, tears, chafing and snags occurring to but not penetrating inner liner or outer coating must be repaired. Trim the damaged area and apply an internal or an external cover patch, depending upon the damage location (Task 10-11 and 10-15).
   d. Hole Damage. Holes, cuts, tears, and snags penetrating one or more plies require an internal and external reinforced cover patch. Repair is limited to damages not exceeding a length or diameter of 4 inches after trimming. Remove loose material and ragged edges. Apply external patch first (Task 10-12 and 10-15.11).
   e. Loose Fitting Flange Damage. Clean and buff contact surfaces. Cement surfaces with repair cement (E63.3). Finish repair by applying external or internal reinforced cover patch depending upon loose fitting flange location (Task 10-12 and 10-15.1).
   f. Replacement of fitting thread inserts (heli-coils) (TM 55-1500-204-25/1).

NON-REPARABLE DAMAGE

4. Damage that is not reparable is classified as follows:
   a. Damage which extends into a corner or step off area or that involves a cut longer than 4 inches is not reparable.
   b. Damage which has led to activation of the sealant ply/plies is not reparable.
   c. Damage to cells which cannot be repaired by cement or reinforced patching is not reparable.

FOLLOW-ON MAINTENANCE:
None

10-11 REPAIR FUEL CELL OUTER COATING 10-11

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Portable Drill, Pneumatic

NSN 5130-00-293-1978

Abrasive Arbor, 1/4 Drive, 1-inch Dia, 1-inch long, Dunmore Model R421003 or equivalent

Materials:

Emery Cloth (E123)

Methyl-Ethyl-Ketone (E244)

Repair Cement - 2 Part Set (E63.2)

Repair Cement - Part 1 (E63.4)

Repair Cement - Part 2 (E63.5)

Wooden Tongue Depressors (E424)

Scotch-Brite (E2)

Cloths (E120)

Gloves (E186)

Personnel Required:

Aircraft Structural Repairer

Inspector

References:

None

Equipment Condition:

As Required

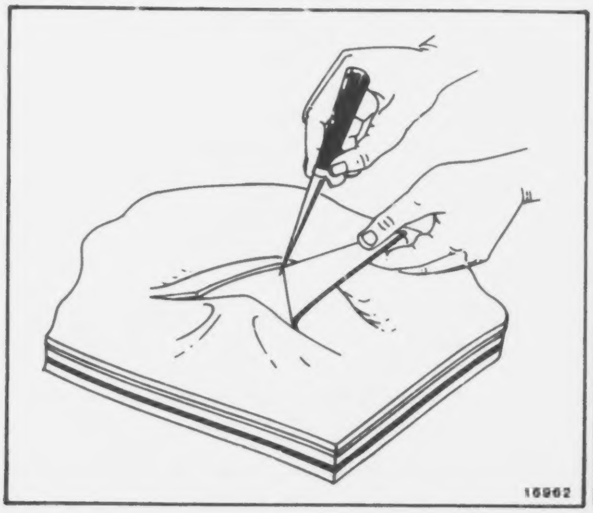
General Safety Instructions:

WARNING

Methyl-ethyl-ketone (E244) and repair cement (E63.2) and its components are flammable and toxic. They can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Repair blisters, cuts, tears, snags, and abrasions that damage but do not penetrate outer coating as follows:

   a. **Trim away** loose, damaged, or blistered **outer coating.**



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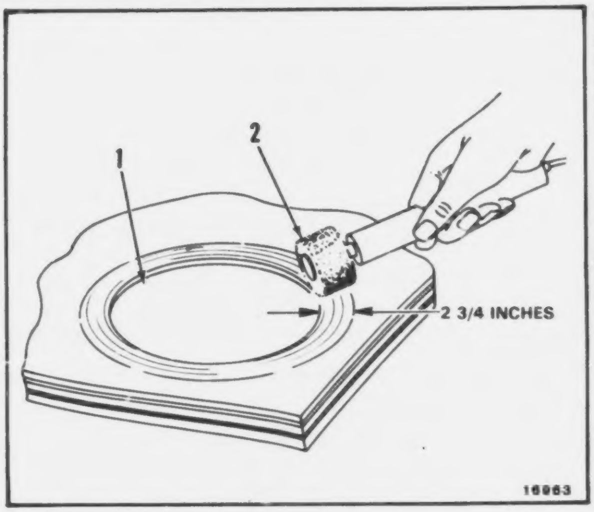
b. **Buff surface around damage** 2-3/4 inch larger in all directions than damaged area (1). Use portable drill (2), abrasive arbor, and scotch-brite (E2). Buff only to remove gloss without excessively reducing outer coating thickness.

c. **Clean buffed area.** Use a clean cloth (E120) soaked in MEK (E244). Wear gloves (E186).

d. **Prepare repair cement** (E63.2) by transferring entire contents of part 2 (E63.5) into can of part 1 (E63.4). Wear gloves (E186).

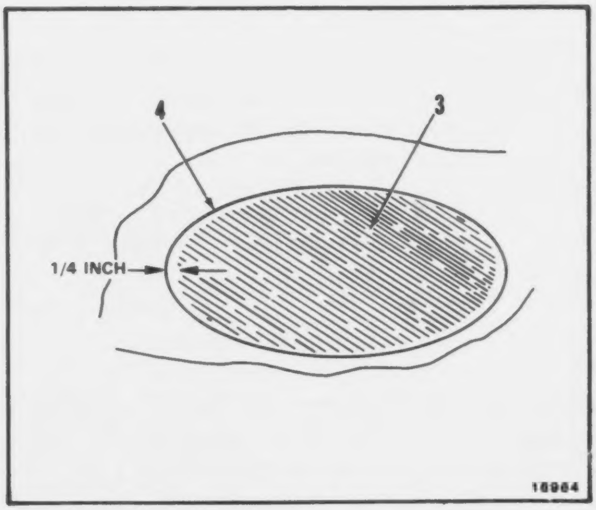


CAUTION

Unmixed cement will not cure.

e. **Stir cement mixture** with tongue depressor (E424) for approximately 5 minutes. Make certain components are completely blended together.

f. **Carefully apply a thin uniform coat of cement mixture (3)** over buffed area (4) to no more than 1/4 inch of O.D. of buffed area. Use a brush. Smooth surface with gloved fingers wet with MEK (E244). Remove any excess cement from unbuffed area. Use clean cloth (E120) soaked in MEK (E244). Wear gloves (E186).



CAUTION

Do not flex fuel cell in repair area.

g. **Allow finished repair to set** for 1 hour before moving fuel cell.

h. **Allow finished repair to air cure** for 24 hours at room temperature of 70°F (33°C) minimum before use.

INSPECT

FOLLOW-ON MAINTENANCE:

Test fuel cell for leakage (Task 10-16 or 10-17).

END OF TASK

10-12 REPAIR FUEL CELL EXTERIOR PLIES 10-12

INITIAL SETUP

Applicable Configurations:

All

Tools:

Portable Drill, Pneumatic
NSN 5130-00-293-1978
Abrasive Arbor, 1/4 Drive, 1-inch Dia, 1-inch Long, Dunmore Model R421003 or equivalent

Materials:

Cloths (E120)
Methyl-Ethyl-Ketone (E244)
Scotch-Brite (E2)
Repair Cement - 2 Part Set (E63.2)
Repair Cement - Part 1 (E63.4)
Repair Cement - Part 2 (E63.5)
Wooden Tongue Depressor (E424)
Repair Fabric (E170.1)
Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

None

Equipment Condition:

As Required

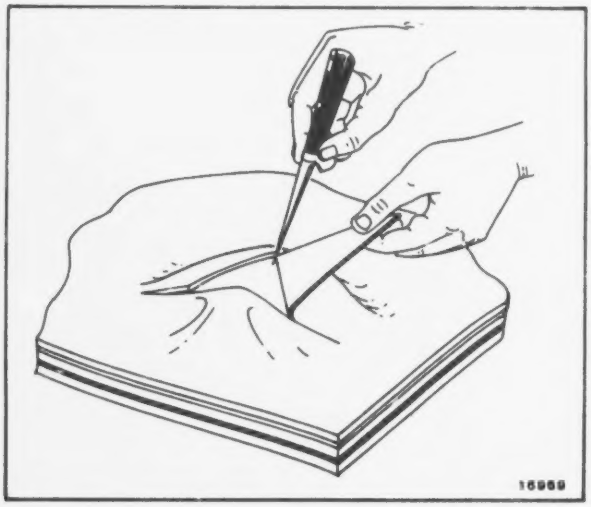
General Safety Instructions:

WARNING

Methyl-ethyl-ketone (E244) and repair cement (E63.2) and its components are flammable and toxic. They can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Repair hole damage, cuts, tears, and snags that penetrate outer coating and one or more exterior plies.

   a. **Trim away** loose, damaged or blistered **outer coating edges.**



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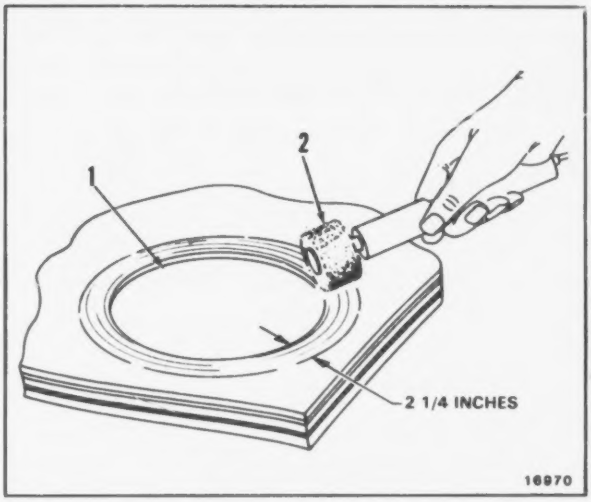
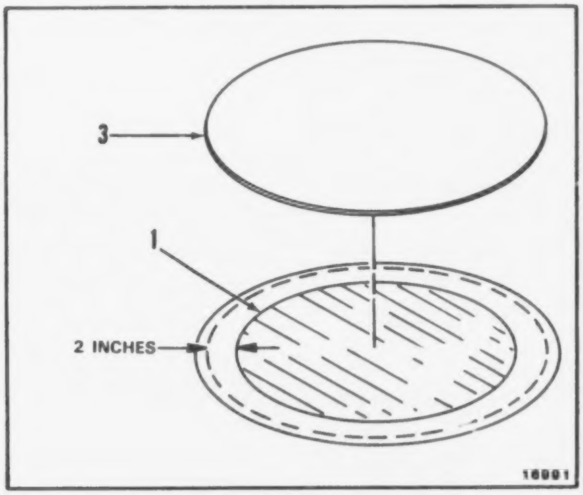
10-12 REPAIR FUEL CELL EXTERIOR PLIES (Continued) 10-12

b. **Buff surface around damage** (1) 2-1/4 inches larger in all directions than damaged area. Use portable drill (2), abrasive arbor, and scotch-brite (E2). Buff only to remove gloss without excessively reducing outer coating thickness.

c. **Clean buffed area.** Use clean cloths (E120) soaked with MEK (E244). Wear gloves (E186).



d. **Cut fabric reinforcing patch (3)** from nylon fabric (E170) large enough to overlap damaged area (1) 2 inches in all directions.



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10-12 REPAIR FUEL CELL EXTERIOR PLIES (Continued) 10-12

e. **Prepare repair cement** (E63.2) by transferring entire contents of part 2 (E63.5) into can of part 1 (E63.4). Wear gloves.

CAUTION

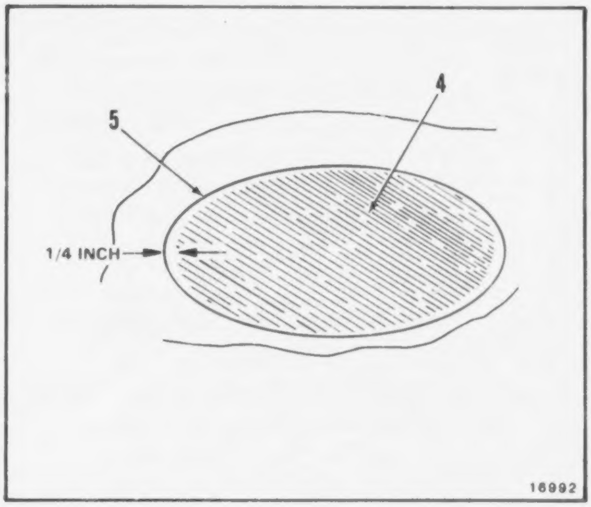
Unmixed cement will not cure.

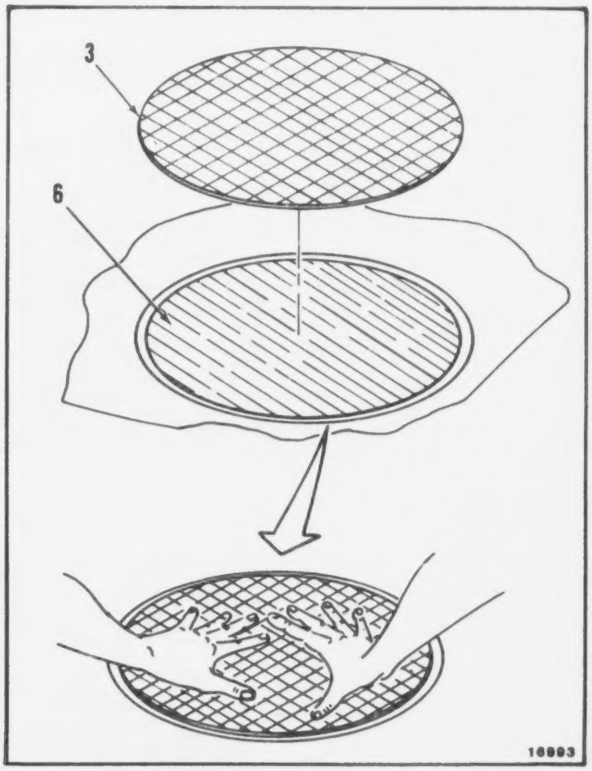
f. **Stir cement mixture** with tongue depressor (E424) for approximtely 5 minutes. Make certain components are completely blended together.

g. **Carefully apply a uniform coat of repair cement** (4) to no more than 1/4 inch of O.D. of buffed edge area (5). Use a brush. Smooth surface with gloved fingers wet with MEK (E244) and remove any excess cement from unbuffed area with a clean cloth (E120) and MEK (E244). Wear gloves (E186).

h. **Wet fabric reinforcement patch** with MEK (E244).

i. **Center wet patch (3) over defect** area and **press into wet cement** (6) with fingers to make sure patch is free of air bubbles and loose edges.





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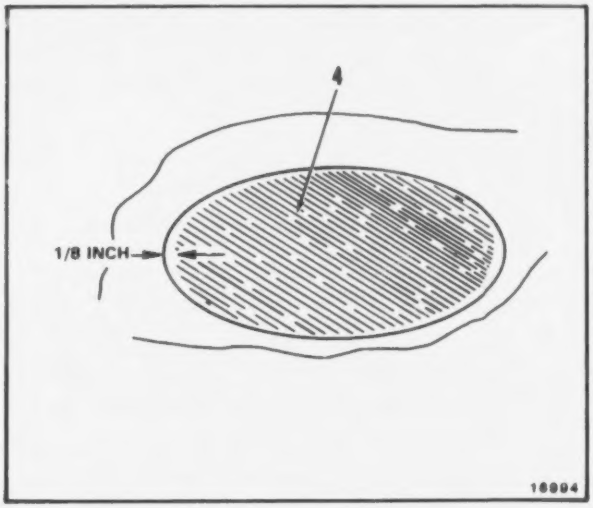
10-12 REPAIR FUEL CELL EXTERIOR PLIES (Continued) 10-12

j. **Carefully apply a uniform coat of repair cement (E63.2)** over patched area (4) to no more than 1/8 inch of buffed edge area. Use a brush. Smooth surface with gloved fingers wet with MEK (E244) and remove any excess cement from unbuffed area with a clean cloth (E120) and MEK (E244). Wear gloves (E186).

k. **Allow finished repair to set** for 1 hour before moving fuel cell.

l. **Allow finished repair to air cure** for 24 hours before use.



INSPECT

FOLLOW-ON MAINTENANCE:

Test fuel cell for leakage (Task 10-16 or 10-17).

END OF TASK

Tasks 10-13 and 10-14 deleted.

10-15 REPAIR FUEL CELL INNER LINER 10-15

INITIAL SETUP

Applicable Configurations:
All

Tools:
Portable Drill, Pneumatic
NSN 5130-00-293-1978
Abrasive Arbor, 1/4-Inch Drive, 1-Inch Dia, 1-Inch Long, Dunmore R421003 or equivalent

Materials:
Cloths (E120)
Methyl-Ethyl-Ketone (E244)
Barrier Cement (E63.3)
Repair Cement - 2 Part Set (E63.2)
Repair Cement Part 1 (E63.4)
Repair Cement Part 2 (E63.5)
Gloves (E186)
Wooden Tongue Depressor (E424)
Scotch Brite (E2)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
None

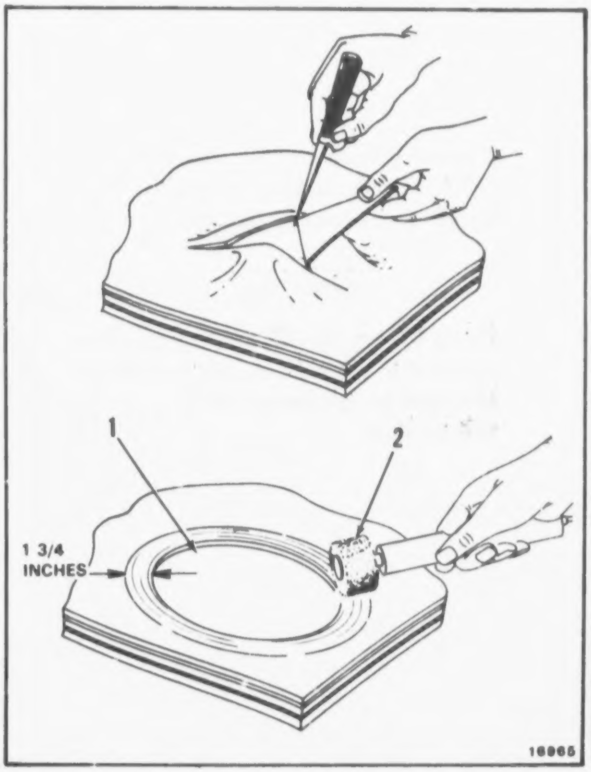
Equipment Condition:
As Required

General Safety Instructions:

WARNING

Methyl-ethyl-ketone (E244), barrier cement (E63.3), repair cement (E63.2) and its components are flammable and toxic. They can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Repair blisters, cuts, tears, snags, and abrasions of fuel cell that damage but do not penetrate inner lining as follows:
   a. **Trim away** loose, damaged, or blistered **edges.**
   b. **Buff surface around damage (1) 1-3/4 inches larger in all directions than damaged area. Use portable drill (2), abrasive arbor, and scotch-brite (E2). Buff only to remove gloss without excessively reducing inner layer thickness.**
   c. **Clean buffed area.** Use a clean cloth (E120) soaked with MEK (E244). Wear gloves (E186).
   d. **Prepare repair cement (E63.2)** by transferring entire contents of part 2 (E63.5) into can of part 1 (E63.4). Wear gloves (E186).



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10-15 REPAIR FUEL CELL INNER LINER (Continued) 10-15

CAUTION

Unmixed cement will not cure.

e. **Stir cement mixture** with tongue depressor (E424) for approximately 5 minutes. Make certain components are completely blended together.

f. **Apply a light coat of cement mixture (3)** over buffed repair area to no more than 1/4 inch of O.D. of buffed area (4). Use a brush. Smooth surface with gloved fingers wet with MEK (E244) and remove any excess cement from unbuffed area. Use a clean cloth soaked with MEK (E244). Wear gloves. Allow to air cure for approximately 30 minutes.

CAUTION

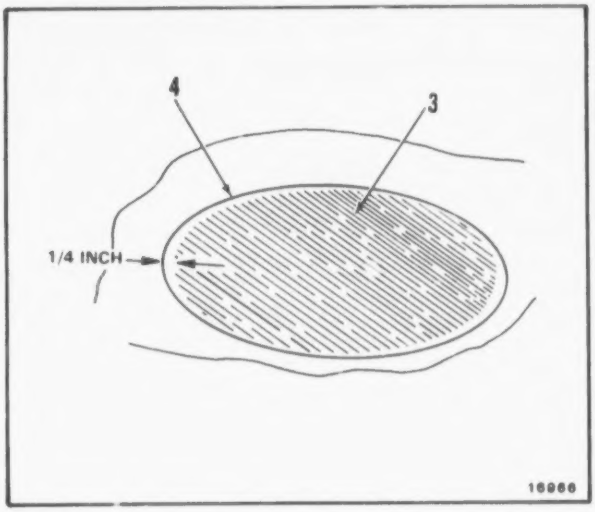
Barrier cement (E63.3) is soluble in methyl-ethyl-ketone (E244). Do not apply MEK to repair area after applying barrier cement.

CAUTION

Do not shake barrier cement (E63.3). Stir with a wooden tongue depressor (E424).

CAUTION

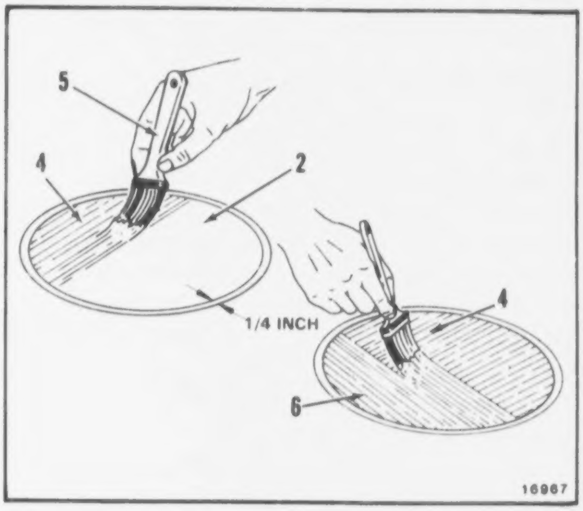
Keep lid on can of barrier cement (E63.3) when not in use to prevent evaporation and thickening.



10-15 REPAIR FUEL CELL INNER LINER (Continued) 10-15

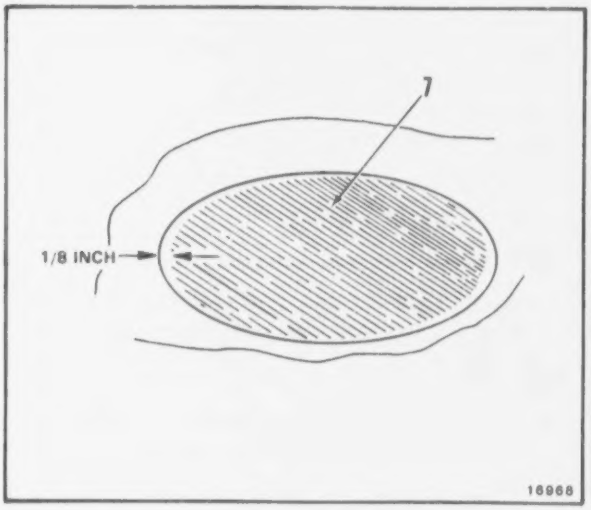
g. **Apply a uniform coat of barrier cement** (E63.3) (4) over previous coat of repair cement (2) to within no more than 1/4 inch of repair area O.D. Use a brush (5). Remove any excess cement from unbuffed area. Use a clean cloth (E120) soaked in MEK (E244). Wear gloves (E186). Allow barrier to dry to touch.

h. **Apply a second coat of barrier cement** (E63.3) (6) over first barrier coat (4) at 90° to the application of first coat. Use a brush. Allow second coat to air dry for approximately 30 minutes.



i. **Prepare repair cement** (E63.2) as in steps d. and e.

j. **Carefully apply a thin uniform coat of repair cement mixture (7)** over previous coats of barrier cement to within no more than 1/8 inch of buffed O.D. edge area. Use a brush. Smooth surface with MEK (E244) and remove any excess cement from unbufffed area. Use a clean cloth (E120) soaked in MEK (E244). Wear gloves (E186).



CAUTION

Do not flex fuel cell in repair area.

k. **Allow finished repair to set** for 1 hour before moving fuel cell.

l. **Allow finished repair to air cure** for 24 hours at room temperature of 70°F (33°C) minimum before use.

FOLLOW-ON MAINTENANCE:

Test fuel cell for leakage (Task 10-16 or 10-17).

END OF TASK

10-15.1 REPAIR FUEL CELL INTERIOR PLIES 10-15.1

INITIAL SETUP

Applicable Configurations:
All

Tools:
Portable Drill, Pneumatic
NSN 5130-00-293-1978
Abrasive Arbor, 1/4-Inch Drive, 1-Inch Dia, 1-Inch Long, Dunmore Model R421003 or equivalent

Materials:
Cloths (E120)
Methyl-Ethyl-Ketone (E244)
Repair Fabric (E170.2)
Repair Cement - 2 Part Set (E63.2)
Repair Cement - Part 1 (E63.4)
Repair Cement - Part 2 (E63.5)
Wooden Tongue Depressor (E424)
Scotch-Brite (E2)
Gloves (E186)
Barrier Cement (E63.3)

Personnel Required:
Aircraft Structural Mechanic
Inspector

References:
None

Equipment Condition:
As Required

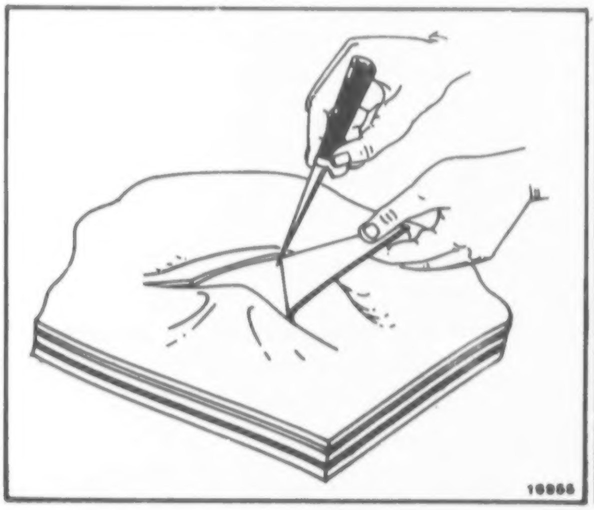
General Safety Instructions:

WARNING

Methyl-ethyl-ketone (E244), barrier cement (E63.3), and repair cement (E63.2) and it's components are flammable and toxic. They can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Repair hole damage, cuts, tears, and snags that penetrate outer coating and one or more exterior plies.

   a. **Trim away** loose, damaged or blistered **outer coating edges.**



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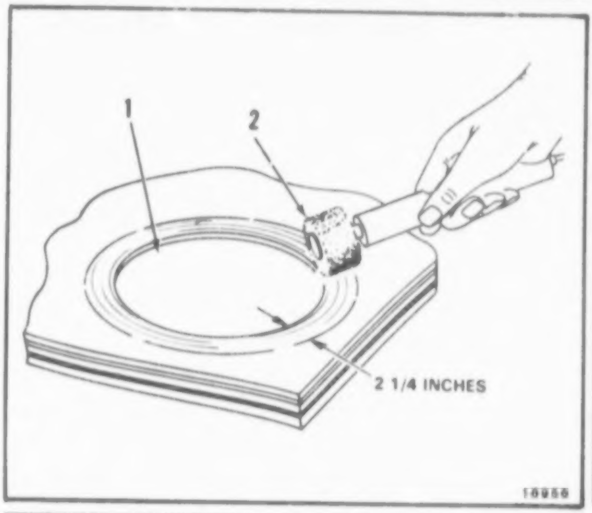
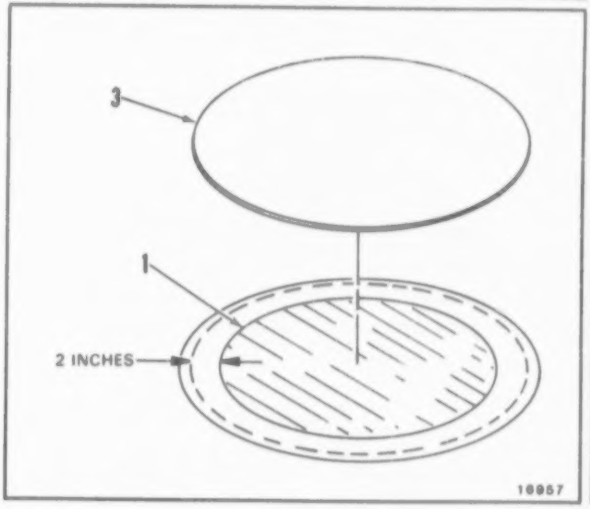
10-15.1 REPAIR FUEL CELL INTERIOR PLIES (Continued) 10-15.1

b. **Buff surface around damage** (1) 2-1/4 inches larger in all directions than damaged area. Use portable drill; abrasive arbor (2), and scotch-brite (E2). Buff only to remove gloss without excessively reducing outer coating thickness.

c. **Clean buffed** area. Use clean cloths (E120) soaked with MEK (E244). Wear gloves (E186).



d. Cut fabric reinforcing patch (3) from nylon fabric (E170.2) large enough to overlap damaged area (1) 2 inches in all directions.



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10-15.1 REPAIR FUEL CELL INTERIOR PLIES (Continued) 10-15.1

e. **Prepare repair cement (E63.2)** by transferring entire contents of part 2 (E63.5) into can of part 1 (E63.4). Wear gloves.

CAUTION

Unmixed cement will not cure.

f. **Stir cement mixture** with tongue depressor (E424) for approximately 5 minutes. Make certain components are completely blended together.

g. **Fill cavity of damaged area** (1) level with inner liner with cement mixture (4) to make a smooth continuous surface to apply barrier over. Apply cement mixture to no more than 1/4 inch of O.D. of buffed area (5).

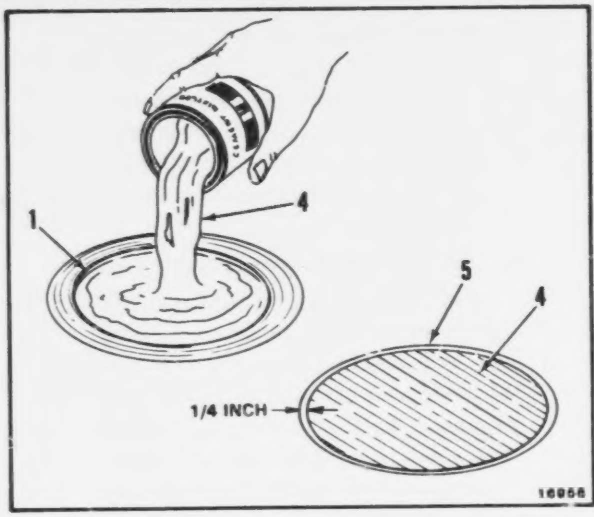
h. **Allow cement to air cure** for approximately 30 minutes.

CAUTION

Barrier cement (E63.3) is soluable in methyl-ethyl-ketone (E244). Do not apply MEK to repair area after applying barrier cement.

CAUTION

Do not shake barrier cement (E63.3). Stir with a wooden tongue depressor (E424).



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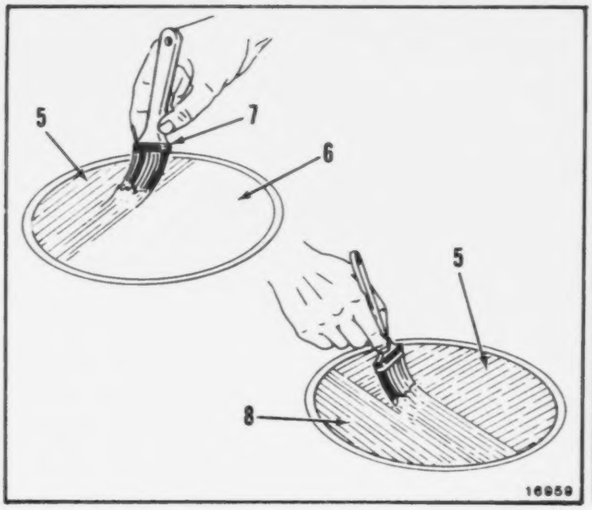
10-15.1 REPAIR FUEL CELL INTERIOR PLIES (Continued) 10-15.1

CAUTION

Keep lid on can of barrier cement (E63.3) when not in use to prevent evaporation and thickening.

i. **Carefully apply a uniform coat of barrier cement (E63.3) (5)** over previous coat of repair cement mixture (6). Use a brush (7). Remove any excess cement from unbuffed area. Use a clean cloth (E120) and MEK (E244). Wear gloves (E186). Allow barrier to dry to touch.

j. **Apply a second coat of barrier cement (8)** over first coat at 90° to the application of the first coat. Use a brush.



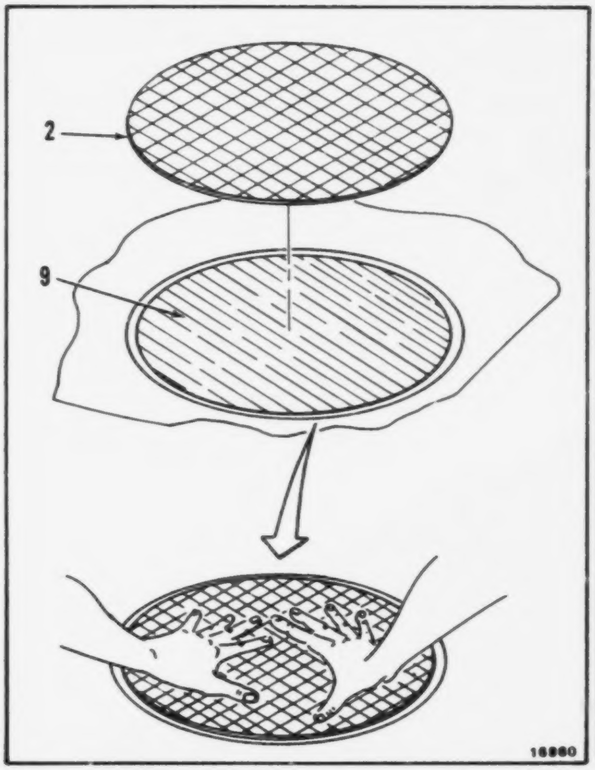
k. **Prepare repair cement (E63.2).** (See steps e. and f.)

i. **Carefully apply a uniform coat of repair cement (9)** over previous coats of barrier cement. Smooth surface with MEK (E244) and remove any excess cement from unbuffed area with a clean cloth (E120) and MEK (E244). Wear gloves (E186).

m. **Wet fabric reinforcement** patch (2) with MEK (E244).

n. **Center wet patch over defect area and press into wet cement** (9) with fingers to make certain patch is free of air bubbles and loose edges.

o. **Allow cement and fabric patch to air cure** approximately 30 minutes.



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10-15.1 REPAIR FUEL CELL INTERIOR PLIES (Continued) 10-15.1

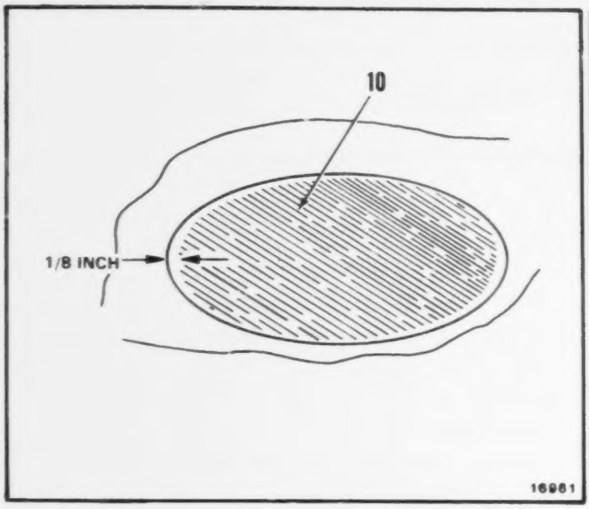
p. **Carefully apply a uniform coat of repair cement (10)** over patched area to within no more than 1/8 inch of O.D. of buffed edge. Smooth surface with gloved fingers wet with MEK (E244). Use a brush. Remove any excess cement with cloths (E120) soaked in MEK (E244). Wear gloves (E186).

CAUTION

Do not flex fuel cell in repair area.

q. **Allow finished repair to set** for 1 hour before moving fuel cell.

r. **Allow finished repair to air cure** for 24 hours before use.



INSPECT

FOLLOW-ON MAINTENANCE:

Test fuel cell for leakage (Task 10-16 or 10-17).

END OF TASK

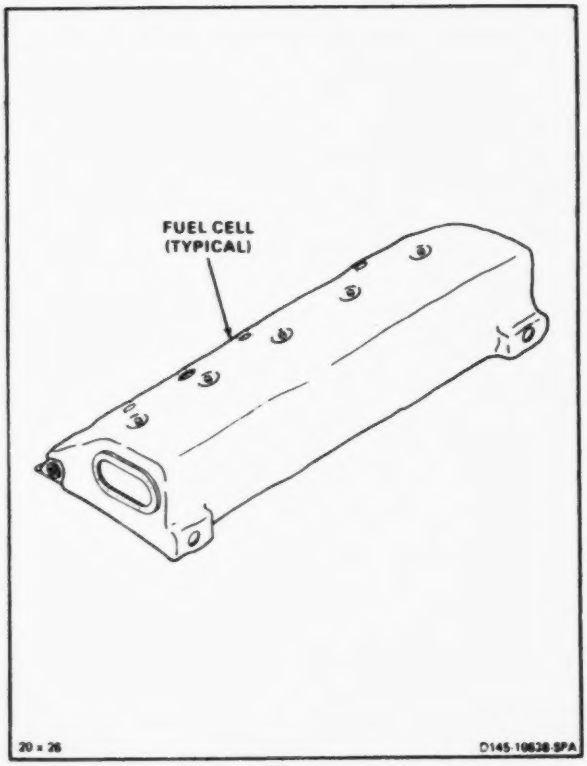
10-16 TESTING REPAIRED CELL — CHEMICAL 10-16

INITIAL SETUP

Applicable Configurations:
All

Tools:
- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Overhead Suspension for Fuel Cell (Appendix E-16)
- Tee Fitting
- Manometer
- Source of Low Pressure Dry Air
- Open Container, 2 Gallons
- Trip Balance
- Graduate (2000 cc)

Materials:
- Ammonium Hydroxide (E73)
- Cloths (E120)
- Phenolphthalein Crystals (E276)
- Ethyl Alcohol (E167)
- Gloves (E186)



Personnel Required:
- 67U10 Medium Helicopter Repairer
- 67U30 Inspector

References:
- Task 10-2
- Task 10-11
- Task 10-12
- Task 10-13
- Task 10-14
- Task 10-15

Equipment Condition:
Off Helicopter Task

General Safety Instructions:

WARNING

Test pressure within the fuel cell shall not exceed 1.5 psi. Damage to the cell could result in personal injury or death.

WARNING

Ethyl alcohol is flammable. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Ammonium hydroxide is extremely toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

10-15.1 REPAIR FUEL CELL INTERIOR PLIES (Continued) 10-15.1

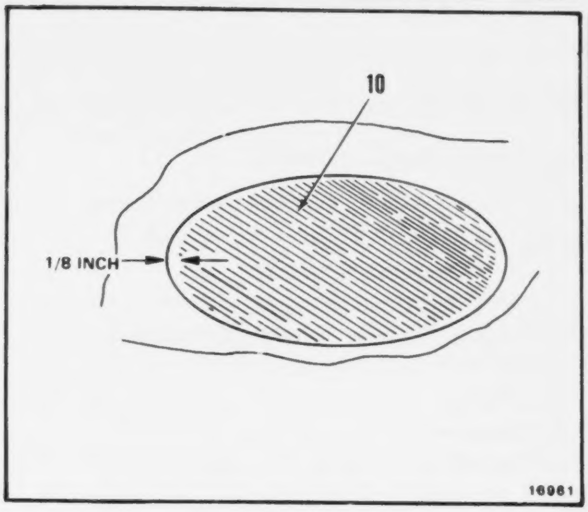
p. **Carefully apply a uniform coat of repair cement (10)** over patched area to within no more than 1/8 inch of O.D. of buffed edge. Smooth surface with gloved fingers wet with MEK (E244). Use a brush. Remove any excess cement with cloths (E120) soaked in MEK (E244). Wear gloves (E186).

CAUTION

Do not flex fuel cell in repair area.

g. **Allow finished repair to set** for 1 hour before moving fuel cell.

r. **Allow finished repair to air cure** for 24 hours before use.



INSPECT

FOLLOW-ON MAINTENANCE:

Test fuel cell for leakage (Task 10-16 or 10-17).

END OF TASK

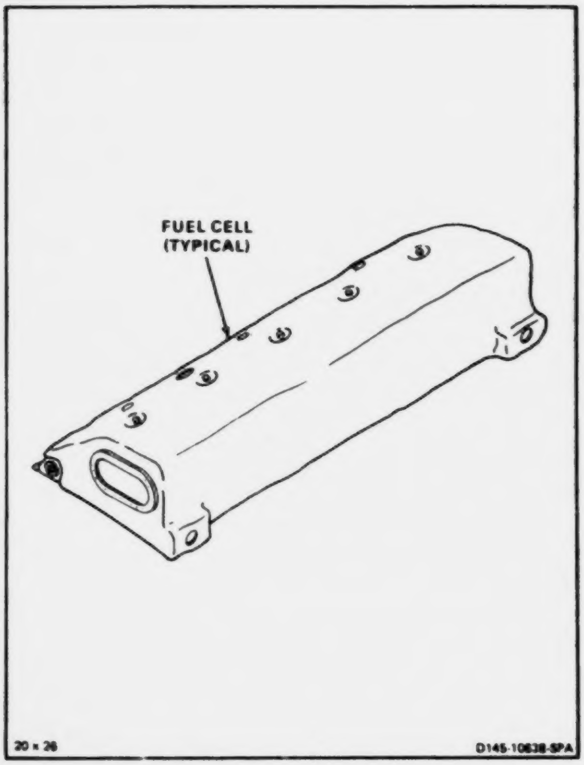
10-16 TESTING REPAIRED CELL — CHEMICAL 10-16

INITIAL SETUP

Applicable Configurations:
All

Tools:
- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Overhead Suspension for Fuel Cell (Appendix E-16)
- Tee Fitting
- Manometer
- Source of Low Pressure Dry Air
- Open Container, 2 Gallons
- Trip Balance
- Graduate (2000 cc)

Materials:
- Ammonium Hydroxide (E73)
- Cloths (E120)
- Phenolphthalein Crystals (E276)
- Ethyl Alcohol (E167)
- Gloves (E186)



Personnel Required:
- 67U10 Medium Helicopter Repairer
- 67U30 Inspector

References:
- Task 10-2
- Task 10-11
- Task 10-12
- Task 10-13
- Task 10-14
- Task 10-15

Equipment Condition:
Off Helicopter Task

General Safety Instructions:

WARNING

Test pressure within the fuel cell shall not exceed 1.5 psi. Damage to the cell could result in personal injury or death.

WARNING

Ethyl alcohol is flammable. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Ammonium hydroxide is extremely toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

10-16 TESTING REPAIRED CELL — CHEMICAL (Continued) 10-16

NOTE

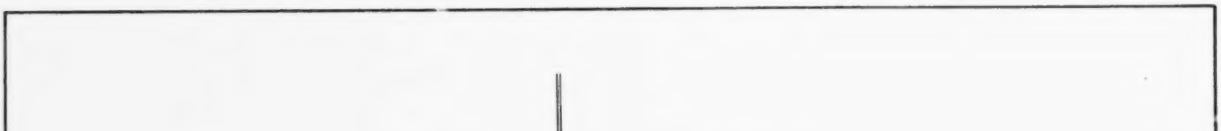
Procedure is same for testing any fuel cell. Main cell is shown here.

1. **Install fuel cell (1) in cage, jig or overhead suspension system (2).**
2. **Install plugs** or sealed fittings in all tank openings (3). **Leave main access door (4) and one tank opening (5) unsealed.**
3. **Install tee assembly (6)** in tank opening (5).
4. **Connect hose (7)** from air supply to one leg of tee (6).
5. **Connect manometer (8)** to other leg of tee (6).
6. **Pour 114 cc of ammonium hydroxide (E73) on cloth (E120). Wear gloves (E186).**

NOTE

Wear gloves through rest of task.

7. **Insert wet cloth into fuel cell (1)** through main access (4).
8. **Install cover plate (9)** on main access hole (4). Install screws (10) and washers (11).
9. **Prepare solution of 40 grams of phenolphthalein crystals (E276) and 2 quarts of ethyl alcohol (E167).** Stir solution thoroughly.
10. **Add 2 quarts of water** to solution and stir.
11. **Inflate cell (1) with dry air to 1 to 1.5 psi maximum.**
12. **Dip cloth (E120) into solution** and wring out cloth thoroughly.
13. **Spread cloth on exterior surface of cell (1)** and press cloth to ensure contact with surface. Wait at least 30 seconds.



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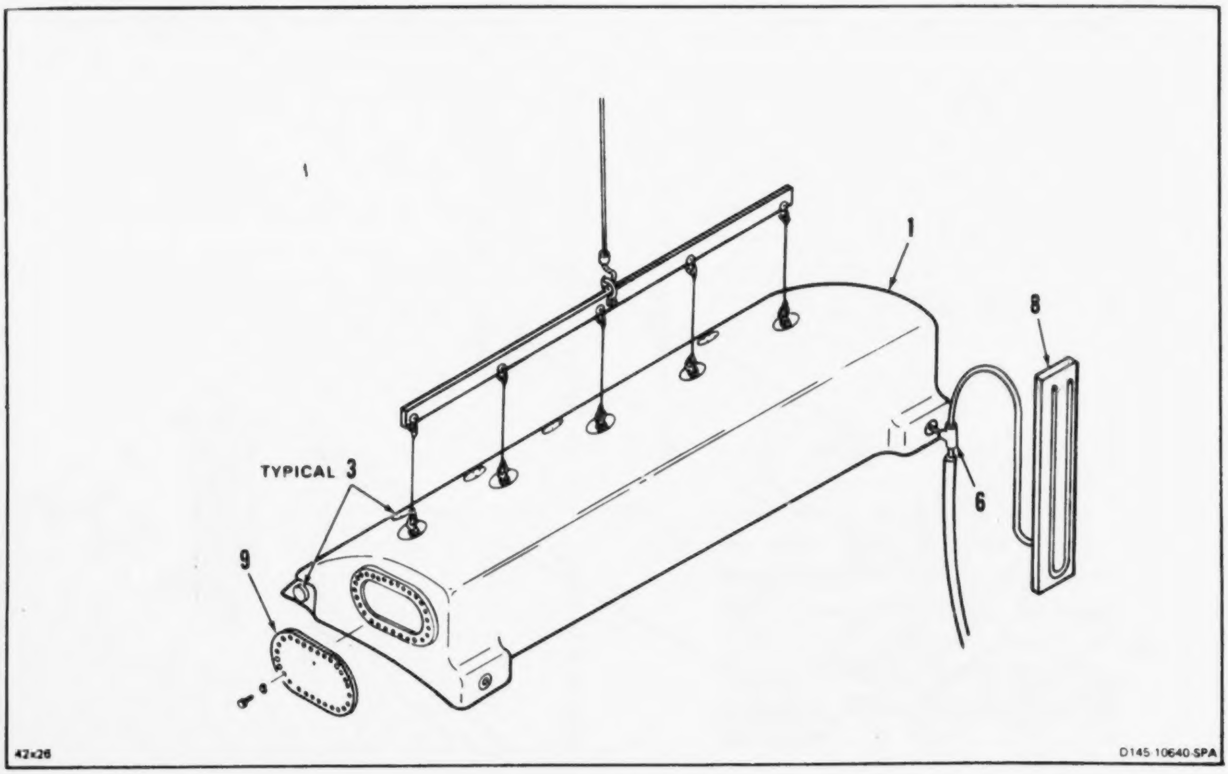
10-16 TESTING REPAIRED CELL — CHEMICAL (Continued) 10-16

14. **Remove cloth and inspect tank for red spots** indicating leak.
15. **Note location of leaks.**
16. **Repeat steps 12, 13, and 14 until all exterior surfaces of cell (1) have been covered.**
17. **Repair fuel cell as necessary** (Task 10-11 thru 10-15).
18. **Repeat steps 11 thru 17 as necessary.**
19. **Disconnect air supply.**
20. **Remove access door (9) and cloth** from interior of cell (1).
21. **Remove manometer (8), tee (6) and all plugs or sealed fittings from tank openings (3).**
22. **Purge fuel cell (1)** (Task 10-2).
23. **Allow cell (1) to air dry.**

INSPECT

FOLLOW-ON MAINTENANCE:

As required.



END OF TASK

10-17 TESTING REPAIRED CELL — SOAP SUDS 10-17

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Overhead Suspension for Fuel Cell (Appx E-16)
Tee Fitting
Manometer
Source of Low Pressure Dry Air
Open Container, 5 Gallon

Materials:
Brush (E85)
Soap (E353)

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

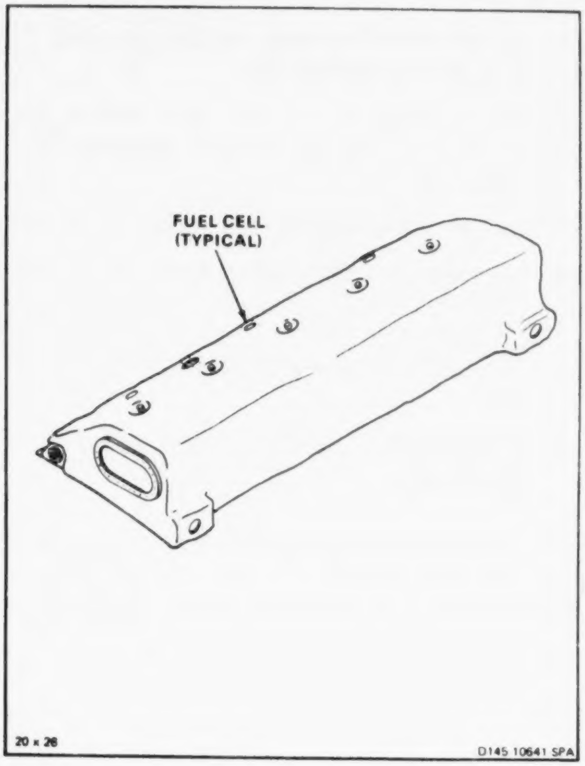
References:
Task 10-11
Task 10-12
Task 10-13
Task 10-14
Task 10-15

Equipment Condition:
Off Helicopter Task

General Safety Instructions:

WARNING

Test pressure within the fuel cell shall not exceed 1.5 psi. Damage to the cell could result in personal injury or death.



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10-17 TESTING REPAIRED CELL — SOAP SUDS (Continued) 10-17

NOTE

Procedure is same for testing any fuel cell. Main cell is shown here.

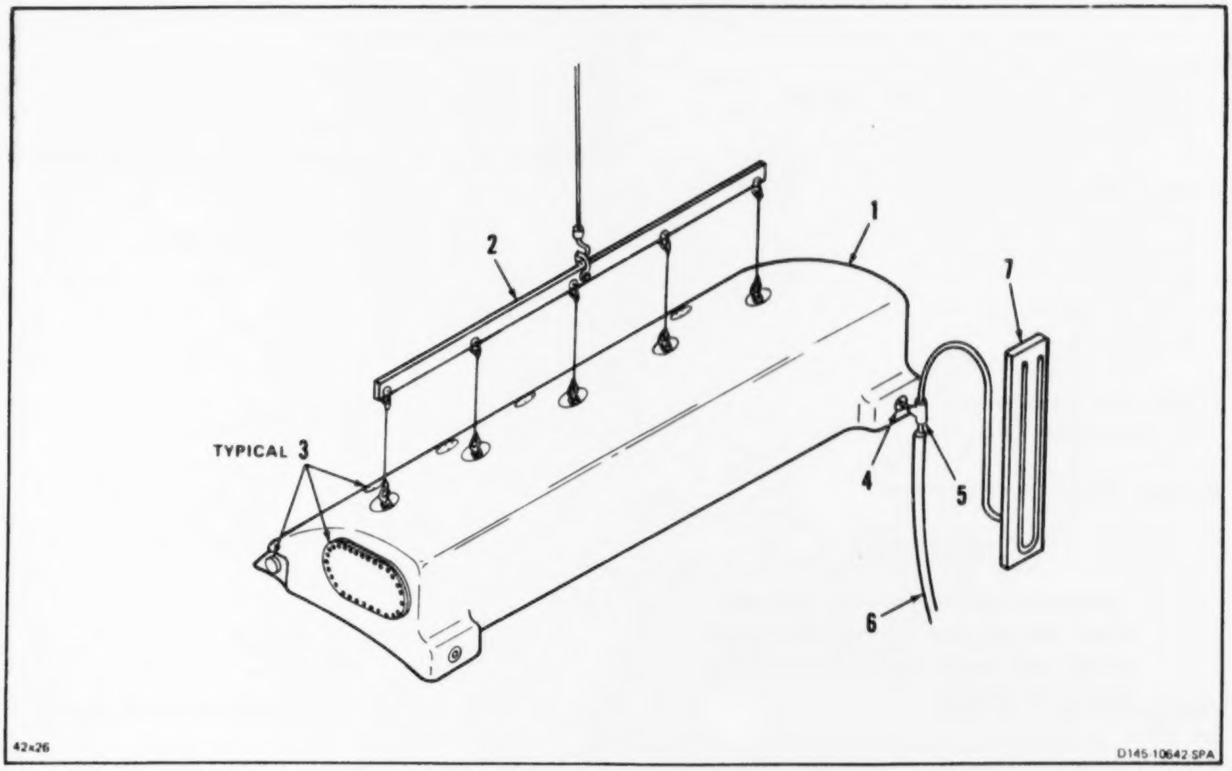
1. **Install cell (1) in cage, jig or overhead suspension system (2).**
2. **Install plugs** or sealed fittings in all tank openings (3). **Leave one tank opening (4) unsealed.**
3. **Install tee assembly (5)** in tank opening (4).
4. **Connect hose (6)** from air supply to one leg of tee (5).
5. **Connect manometer (7)** to other leg of tee (5).
6. **Inflate cell (1)** with dry air **to 1 to 1.5 psi maximum.**
7. **Prepare suds mixture** of soap and water. Use soap (E353).
8. **Apply suds mixture** to external surfaces of cell (1). Use brush (E85).
9. **Check surface** of cell (1) **for bubbling** of suds.
10. **Note location of air leaks.**
11. **Remove all soap residue** from surface of cell (1). Use water.
12. **Repair fuel cell (1) as necessary** (Task 10-11 thru 10-15).
13. **Repeat steps 6 thru 12 as necessary.**

INSPECT

14. **Disconnect air supply hose (6).**
15. **Remove manometer (7), tee (5), and all plugs or sealed fittings** from tank openings (3).

FOLLOW-ON MAINTENANCE:

As required.



END OF TASK

10-17.1 PREPARE FUEL CELL FOR SHIPPING 10-17.1

INITIAL SETUP

Applicable Configurations:
All

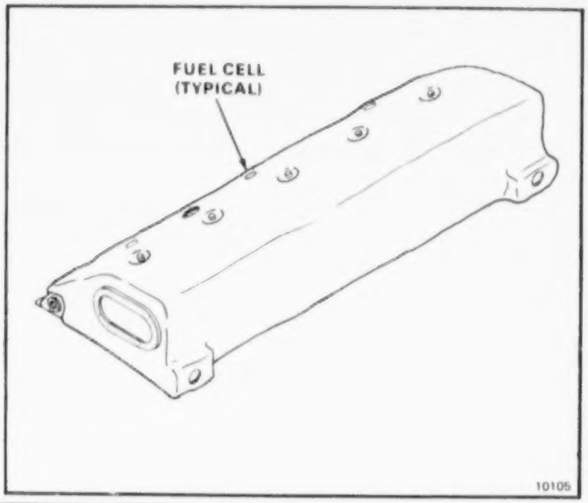
Tools:
As Required

Materials:
Fiberboard Shipping Box (E82)

Personnel Required:
Medium Helicopter Repairer (2)

References:
MIL-P-25621

Equipment Condition:
Off Helicopter Task

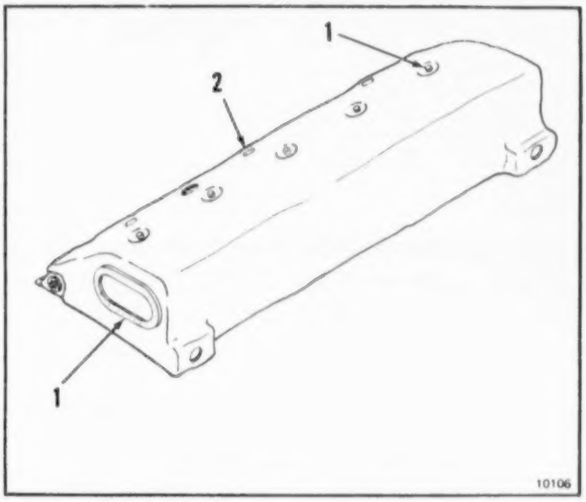


1. **Cushion fittings (1)** on cell (2).
2. **Block cell (2)** to prevent collapsing. Use suitable framework (MIL-P-25621). Cover framework with padding material.
3. **Place cell (2) into fiberboard shipping box (E82).**
4. Use padding material to **cushion cell (1)** and prevent movement **inside box.**

CAUTION

Do not use nails to seal shipping box. Damage to cell could occur.

5. **Seal shipping box** (MIL-P-25621).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

10-18 PRESERVING FUEL TANK 10-18

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Container, Five Gallon

Materials:
Cloths (E135)
Lubricating Oil (E251)
Barrier Material (E80)
Tape (E388)

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Conditions:
As Required

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

NOTE

After approximately 10 days, tanks drained of fuel will dry out. This results in checked and cracked inner walls. Access to inner wall of cell will vary, dependant upon level of disassembly of tank.

CAUTION

Use only clean unused oil. (Refer to TM 55-1500-204-25/1.)

1. Gain access to inside of tank cell.
2. **Apply light coat of lubricating oil (E251) to inner wall of cell.** Apply oil by spraying, fogging, sloshing or painting.
3. **Drain excess oil** into container.

INSPECT

4. **Cover access hole** with removed component or barrier material (E80) and tape (E388).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-19 INSPECTION OF FUEL CELLS AND TANK BEFORE INSTALLATION 10-19

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:

Barrier Material (E80)
Tape (E383)
Gloves (E186)
Zinc Chromate Primer (E291)

Personnel Required:

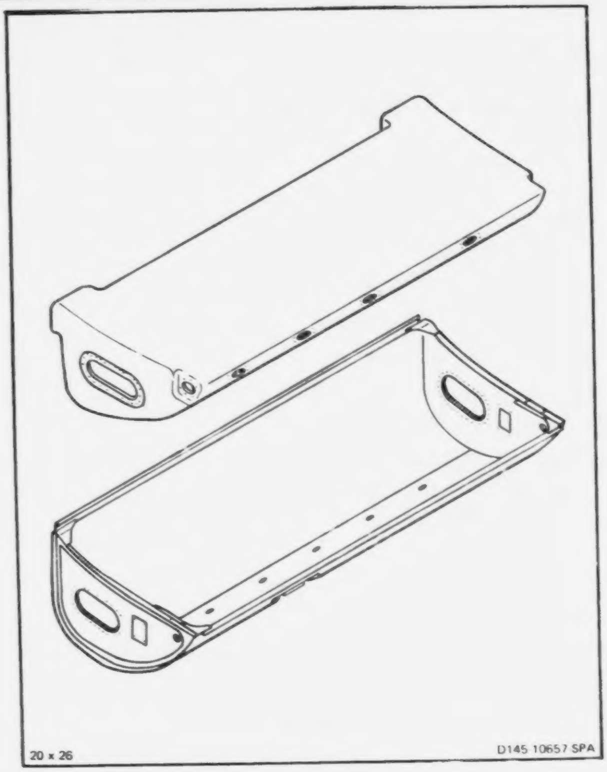
Medium Helicopter Repairer
Inspector

References:

Task 10-10
Task 10-11
Task 10-12
Task 10-13
Task 10-14
Task 10-15
Task 2-337
Task 2-6
Task 10-8
Task 10-18

Equipment Condition:

Off Helicopter Task



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10-19 INSPECTION OF FUEL CELLS AND TANK BEFORE INSTALLATION (Continued) 10-19

NOTE

Inspection of all fuel cells and tanks is same.

FUEL CELL

1. **Inspect inside surface (1) and outside surface (2) of cell,** for cuts and scuffed areas.
2. **Classify damage** (Task 10-10).
3. **Repair damage** (Task 10-11 thru 10-15).
4. **Inspect fitting seal surfaces (3)** for nicks, scratches and foreign materials.
5. **Repair damage** (Task 10-14).
6. **Inspect inner lining of cell for surface mold.** Pay particular attention to isolated areas.
7. **Clean any affected areas (Task 10-8).**

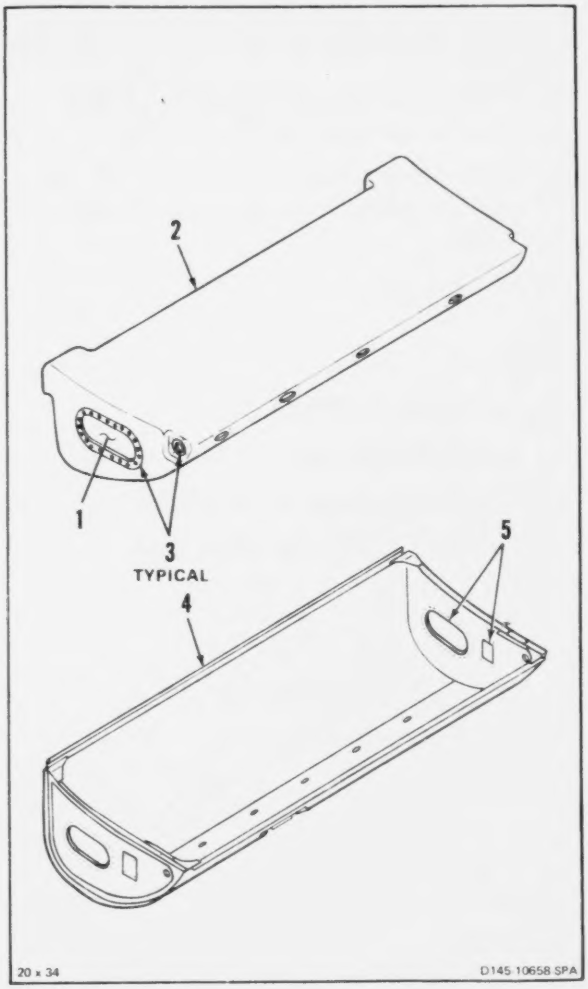
FUEL POD

8. **Inspect interior of pod (4) for burrs, bare rivets or any condition that could cause chafing of fuel cell (2).**

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

9. **If any burrs are discovered, burnish area until surface is smooth, and finish with two coats of zinc chromate primer (E291) (Task 2-6).** Wear gloves (E186).
10. **If a bare rivet head or a condition that could cause chafing is found, apply anti-chafing tape (E383) to those areas (Task 2-337).**
11. Inspect pod fitting seal surfaces (5) for nicks, scratches, and foreign materials.



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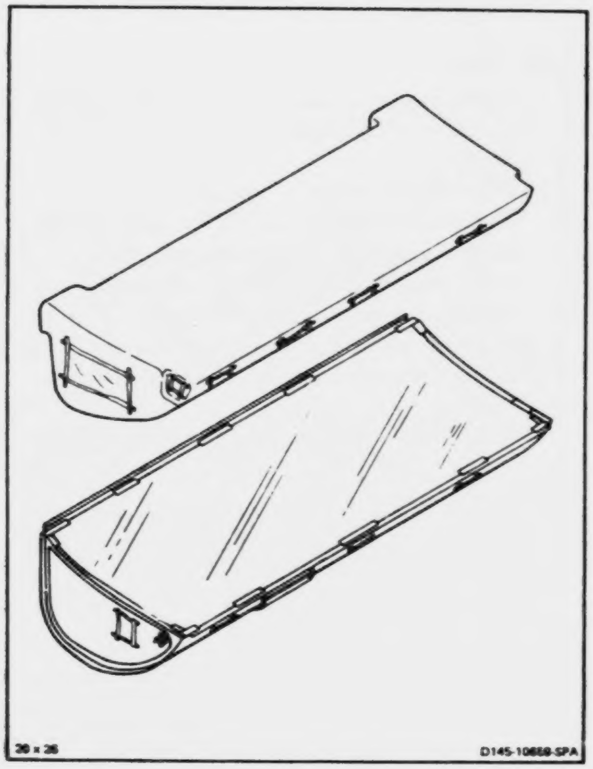
10-19 INSPECTION OF FUEL CELL AND TANK BEFORE INSTALLATION (Continued) 10-19

12. If cell will not be refueled within 10 days, preserve cell (Task 10-18).
13. If tank will not be assembled, cover all openings. Use barrier material (E80) and tape (E388).



FOLLOW-ON MAINTENANCE:

Install main fuel tank cell (Task 10-20).

Install forward fuel tank cell (Task 10-25).

Install aft fuel tank cell (Task 10-30).

END OF TASK

10-19.1 PREPARATION TO REPLACE MAIN FUEL PODS 10-19.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Drill Size O

Drill Size F

Materials:

Lockwire (E232)

Zinc Chromate Primer (E291)

Gloves (E186)

Personnel Required:

Structural Repairer (2)

Inspector

References:

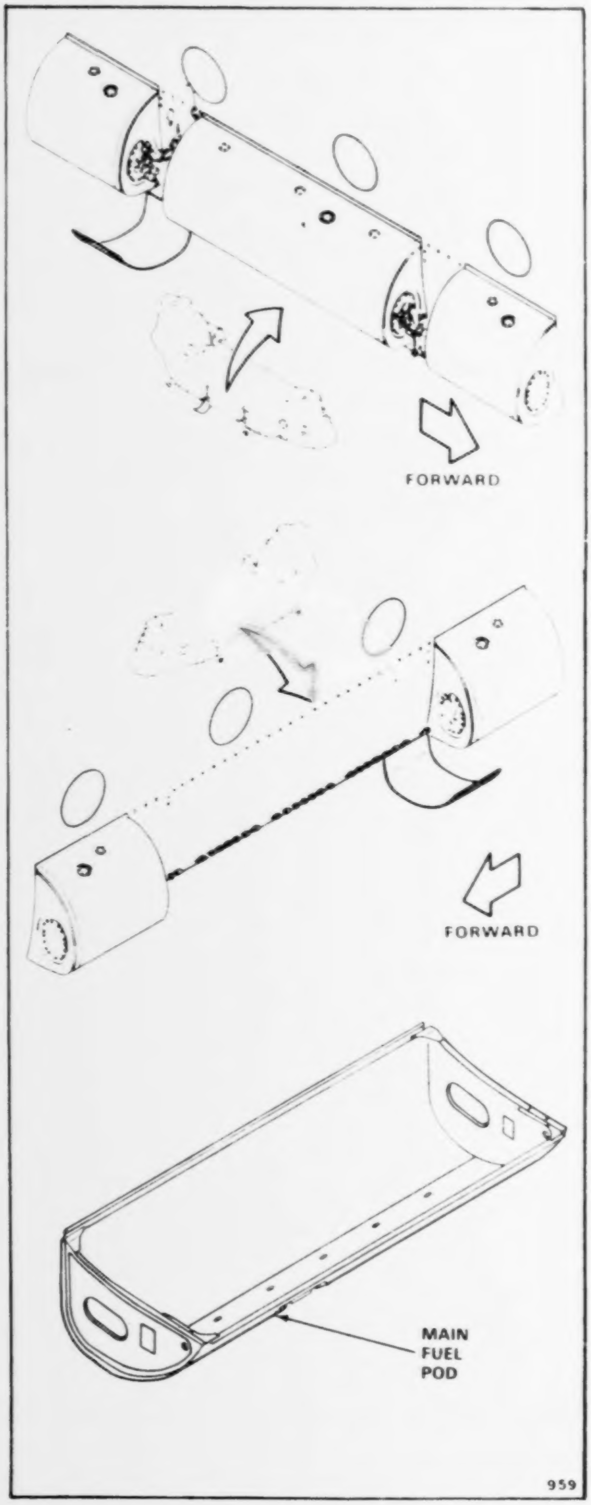
TM 55-1520-240-23P

Task 10-20

Task 10-21

Equipment Condition:

Right or Left Main Fuel Tanks Removed (Task 10-28)



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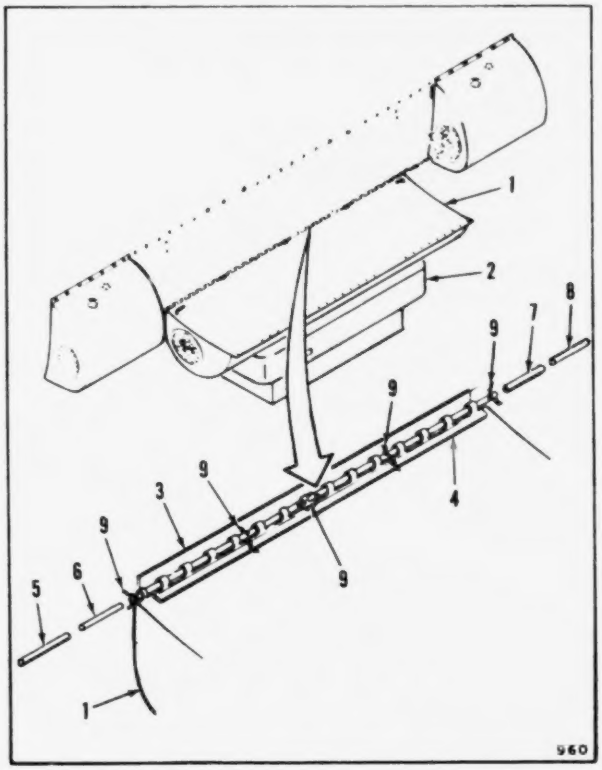
10-19.1 PREPARATION TO REPLACE MAIN FUEL PODS (Continued) 10-19.1

NOTE

Procedure is same to prepare to replace left or right main fuel pod. Left fuel pod is shown here.

1. With aid from helper, position pod (1) on padded support (2) at side of aircraft. Align fuselage hinge half (3) with tank hinge half (4).
2. **Install four hinge pins (5, 6, 7, and 8)** in hinge (3 and 4).
3. **Install lockwire at five places (9)** to secure hinge pins (5, 6, 7, and 8). Use lockwire (E232).



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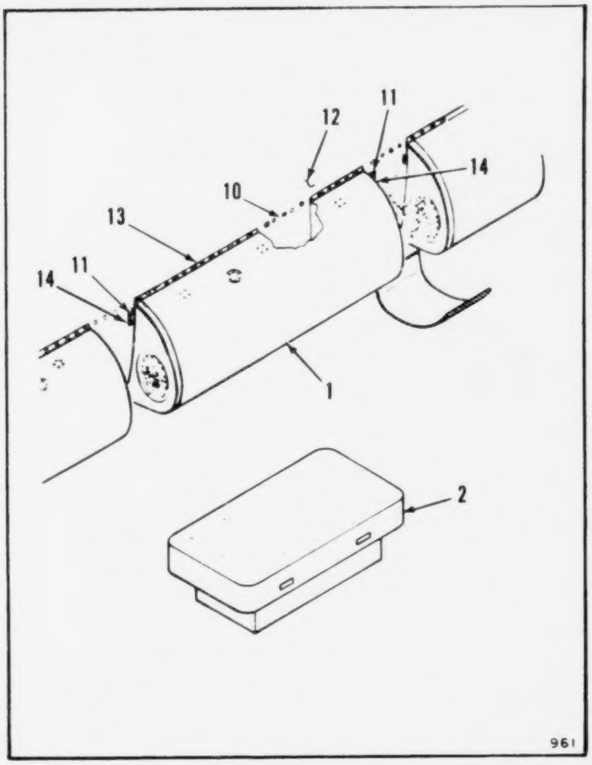
10-19.1 PREPARATION TO REPLACE MAIN FUEL PODS (Continued) 10-19.1



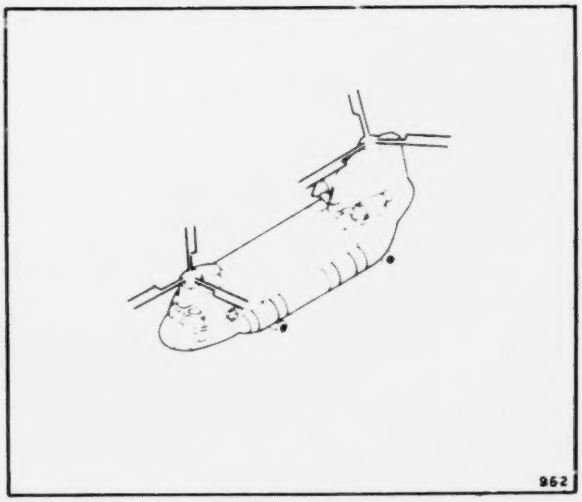
4. **Raise pod (1)** and position against side of aircraft.
5. Working from inside aircraft **mark 37 bolt holes (10)** along top of pod (1), **and 4 bolt holes (11)** on side of pod. Use holes in fuselage (12) as guide.
6. **Lower pod (1)** on support (2).
7. **Drill 37 holes (10)** in top support angle (13). Deburr holes. **Use drill size F.**
8. **Drill 4 holes (11)** in side support angle (14). Deburr holes. **Use drill size O.**

INSPECT

WARNING

Zinc chromate primer (291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

9. **Apply primer (E291)** to drilled holes (10 and 11). Wear gloves (E186).
10. **Perform Task 10-20.**
11. **Perform Task 10-21.**



FOLLOW-ON MAINTENANCE:

Test main tank after installation (Task 10-22).

Perform vent system pressure test (Task 10-117) and flow test (Task 10-118) on affected tank.

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel all tanks (Task1-51).

Check for leaks (Task 10-4).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Install forward landing gear access panel (Task 2-179 or 2-181).

Close and secure aft intertank pod panel (Task 2-2).

Install main fuel tank vent fairing (Task 10-64).

END OF TASK

10-20 INSTALL MAIN FUEL TANK CELL 10-20

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Torque Wrench, 700 to 1600 Inch-Pounds
Torque Wrench, 30 to 150 Inch-Pounds

Materials:
Petrolatum (E274)

Parts:
Packings
Gaskets

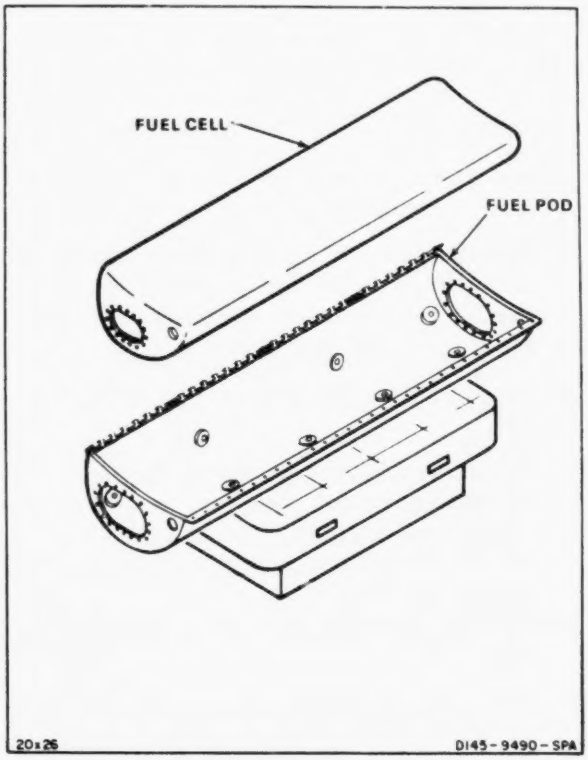
Personnel Required:
67U10 Medium Helicopter Repairer
68F10 Aircraft Electrician
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

CAUTION

Do not puncture or scratch lining of fuel cell. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel cell and flush fuel system.



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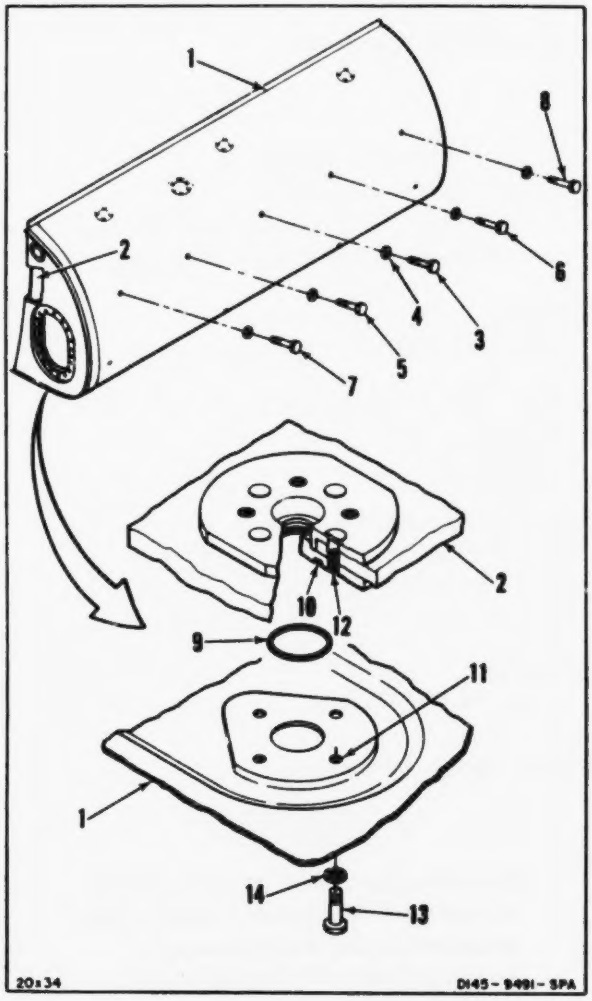
10-20 INSTALL MAIN FUEL TANK CELL (Continued) 10-20

NOTE

Procedure is same to install cell in No. 1 or No. 2 fuel tank pod. Installation of No. 1 (left) cell is shown here.

1. Make sure interior of fuel tank pod (1) is free of foreign material.
2. **Position fuel cell (2) carefully in tank pod (1).** Insert lower portion of cell in pod. Depress top portion of cell. Position it in and along top portion of tank pod.
3. Form cell (2) to fit contour of pod structure (1).
4. **Install bolt (3)** and washer (4). **Do not tighten bolt** at this time.
5. **Install four bolts (5, 6, 7, and 8)** and washers (4) in this order. **Do not tighten bolts** at this time.
6. **Tighten five bolts (3, 5, 6, 7, and 8)** in this order.
7. Coat two packings (9) with petrolatum (E274). Install packings carefully in annular groove of flange (10) at each end of tank. Make sure that packings are not disturbed during positioning of fuel cell (2) in pod (1).
8. Align holes (11) in pod (1) with holes (12) in cell (2). **Install eight bolts (13)** and washers (14). **Torque bolts to 60 to 80 inch-pounds.**



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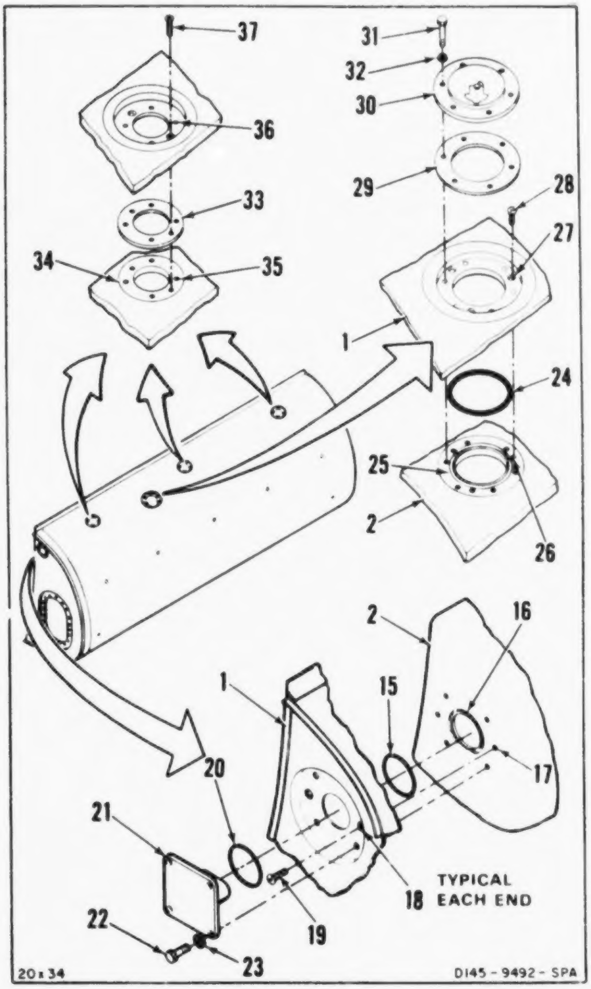
10-20 INSTALL MAIN FUEL TANK CELL (Continued) 10-20

9. Coat two packings (15) with petrolatum (E274). **Install packings** carefully in annular groove of flange (16) at each end of cell (2). Make sure packings are not disturbed during positioning of fuel cell in pod (1).
10. Align holes (17) with holes (18). **Install two screws (19) at each end of tank pod (1).**
11. Coat two packings (20) with petrolatum (E274). **Install packings** carefully in annular groove of closure plate (21). **Position closure plate** at each end of tank pod (1).
12. **Install eight bolts (22)** and washers (23). **Torque bolts to 60 to 80 inch-pounds.**
13. Coat packing (24) with petrolatum (E274). **Install packing** carefully in annular groove of cell flange (25). Make sure packing is not disturbed during positioning of fuel cell (2) in pod (1).
14. Align hole (26) in cell (2) with hole (27) in pod (1). **Install three screws (28).**
15. **Position gasket (29) and filler adapter assembly (30). Install four bolts (31)** and washers (32). **Torque bolts to 60 to 80 inch-pounds.**
16. **Position gaskets (33)** on three flanges (34) of fuel cell (2). Align holes (35) in fuel cell with holes (36) in tank pod (1). **Install six screws (37).**



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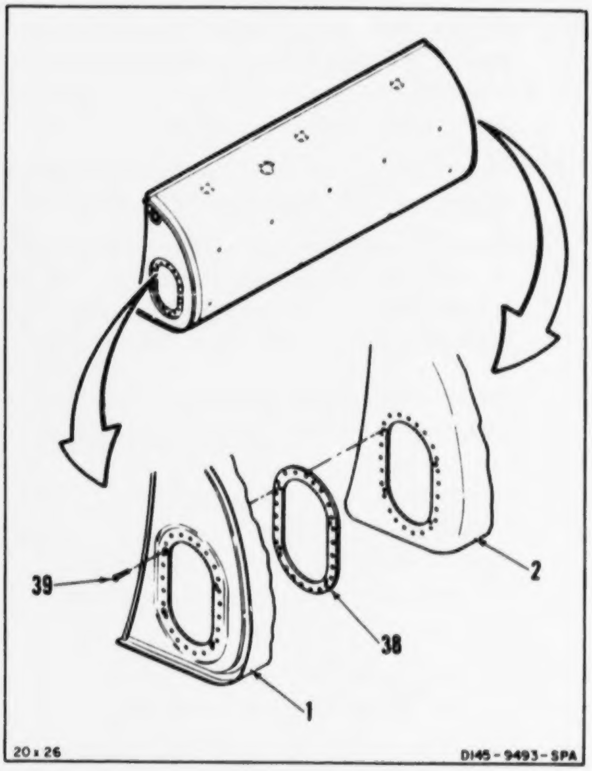
10-20 INSTALL MAIN FUEL TANK CELL (Continued) 10-20

17. Lightly smear both sides of gaskets (38) with petrolatum (E274).
18. **Position gaskets (38)** between fuel pod (1) and fuel cell (2) at both ends of fuel pod.
19. Align fuel pod (1), gasket (38), and fuel cell (2). **Install four screws (39)** at each end of tank pod.



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10-20 INSTALL MAIN FUEL TANK CELL (Continued) 10-20

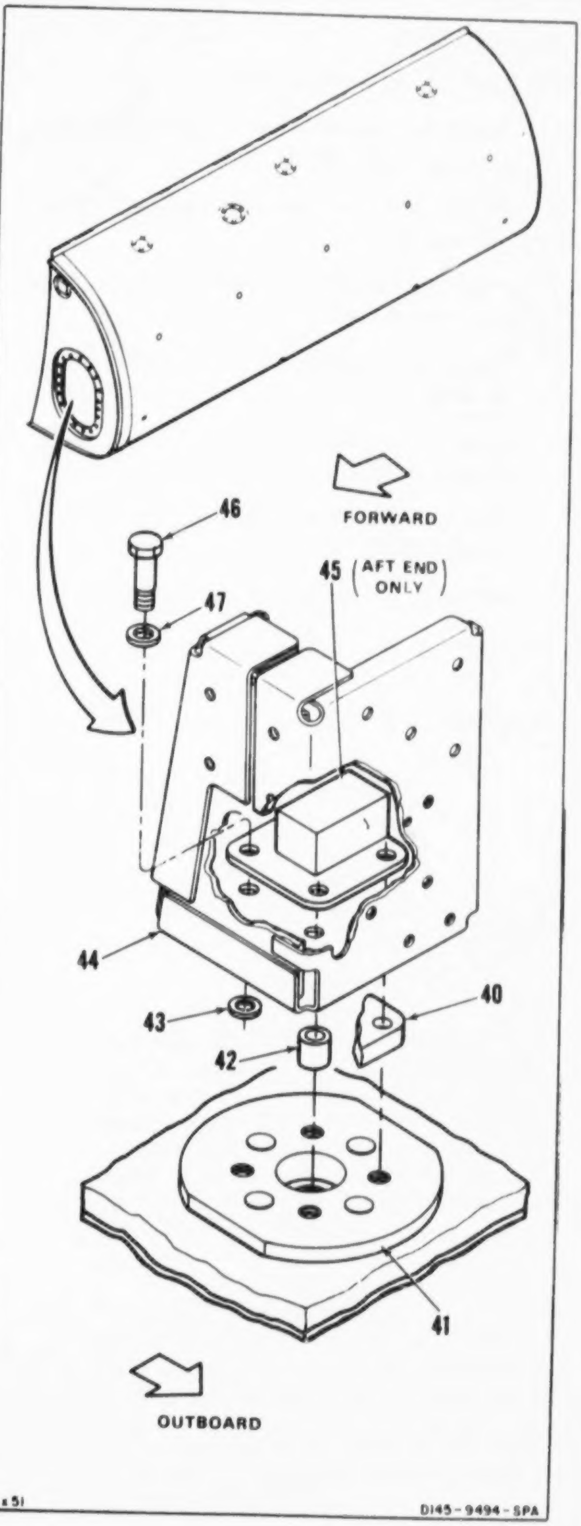
20. **Install fuel tank drain valve (Task 10-40).**

INSTALL TWO BOOST PUMP BRACKETS

NOTE

- Four different types of main fuel cells are used on the helicopter. Each is interchangeable, but requires a different washer, bushing or adapter between pump bracket and cell.
- Procedure is same to install forward and aft boost pump mounting bracket. Installation of forward mounting bracket is shown here.

21. **For fuel tank 414PS400-7 position adapter (40) on cell flange (41) for fuel tanks 414PS400-8 or 145P4057-2 position four bushings (42) on cell flange (41). For fuel tank 145P4057-1 position four washers (43) on cell flange (41).**
22. **Position pump bracket (44).**
23. **On aft pump bracket (44) position flange assembly (45).**
24. **Install four bolts (46)** and washers (47).



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10-20 INSTALL MAIN FUEL TANK CELL (Continued) 10-20

INSPECT

FOLLOW-ON MAINTENANCE:

Install fuel level control valve and mounting bracket (Task 10-60).

Install main fuel tank vent assembly (Task 10-44).

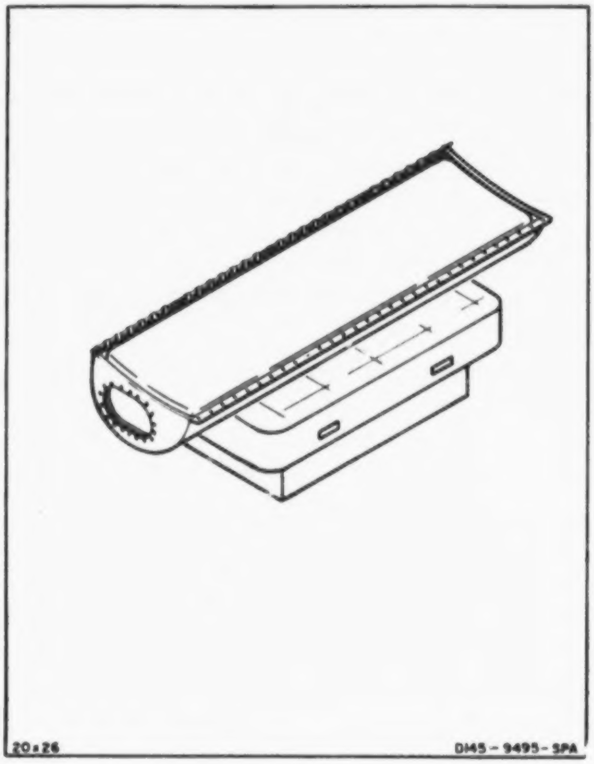
Install main fuel tank lines and electrical wiring (Task 10-42).

Install main fuel tank aft boost pump (Task 10-54).

Install main fuel tank forward boost pump (Task 10-52).

Install main fuel tank quantity transmitters (Task 8-82).

Install main fuel tank (Task 10-21).



END OF TASK

10-21 INSTALL MAIN FUEL TANK

INITIAL SETUP

Applicable Configurations:
All

Tools:
- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Open End Wrench, 1-1/2 Inch
- Open End Wrench, 1-7/8 Inch

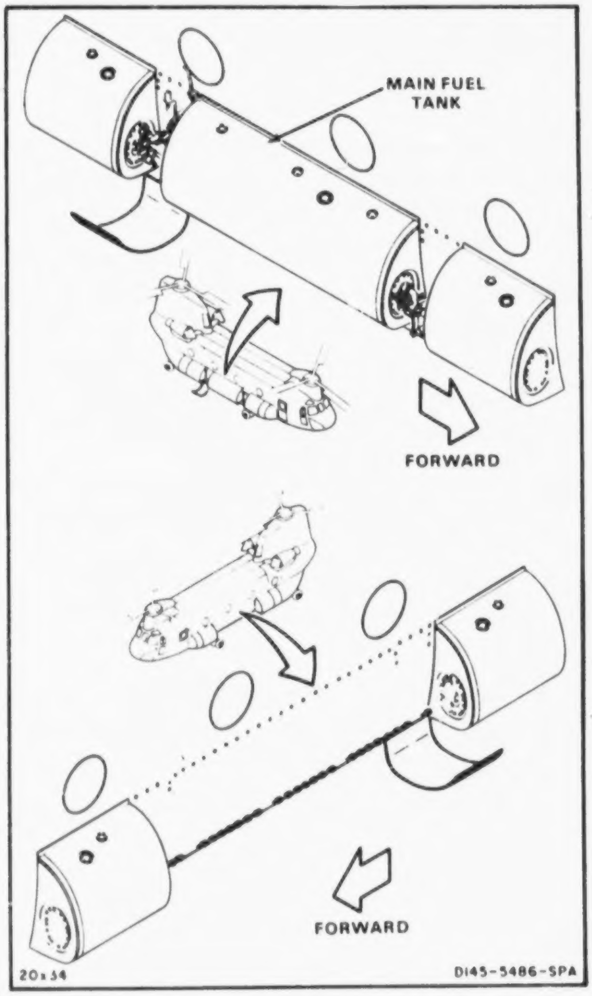
Materials:
- Lockwire (E231)
- Lockwire (E232)
- Tiedown Straps (E375)
- Parting Agent (E307)
- Dry Cleaning Solvent (E162)
- Gloves (E186)
- Sealant (E336)
- Cloths (E135)
- Tongue Depressor (E424)

Parts:
Gaskets

Personnel Required:
- Medium Helicopter Repairer (3)
- Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:



WARNING

All regulations and instructions for handling fuels shall be strictly observed.

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Parting agent (E307) can form toxic vapors if exposed to flame. Use in well-ventilated area, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

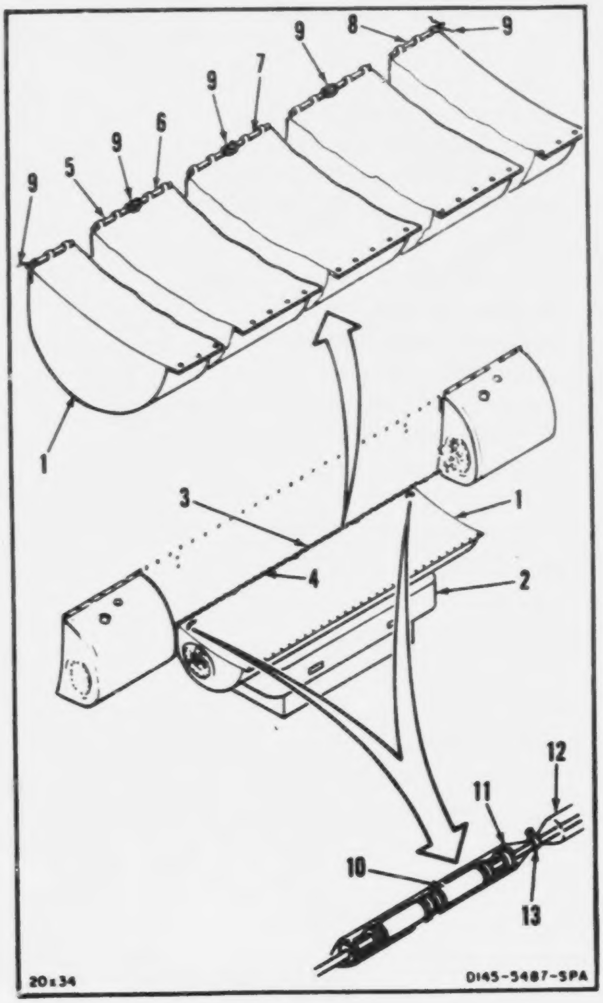
10-21 INSTALL MAIN FUEL TANK (Continued) 10-21

NOTE

Procedure is same to install main fuel tank in No. 1 or No. 2 fuel system. Installation of No. 1 (left) fuel tank is shown here.

INSTALL FUEL TANK ON HINGES

1. With aid from helper, position tank (1) on padded support (2) at side of helicopter. **Align fuselage hinge half (3) with tank hinge half (4).**
2. **Install four hinge pins (5, 6, 7, and 8).**
3. **Install lockwire at five places (9)** to secure hinge pins (5, 6, 7 and 8). Use lockwire (E232).
4. **Connect two cable plugs (10).**
5. Slide sleeves (11) over plugs (10) and tank sleeves (12). Secure sleeves with tiedown straps (E375) (13).



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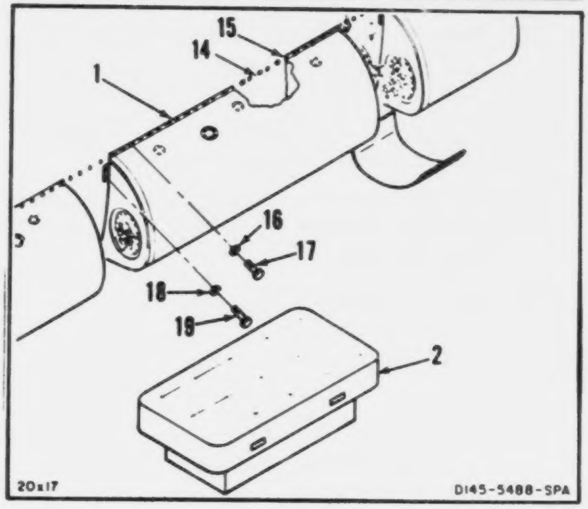
10-21 INSTALL MAIN FUEL TANK (Continued) 10-21

INSTALL MAIN FUEL TANK



6. Clean beam (14) and top edge (15) of tank (1). Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Use gloves (E186).
7. Apply thin coat of parting agent (E307) along beam (14). Use tongue depressor (E424).
8. Apply sealant (E336) along top inside edge of tank (15). Use tongue depressor (E424). Wear gloves (E186).
9. With aid from helpers, **raise tank (1)** and position it against beam (14).

9.1. **Install 37 bolts (17)** and washers (16). Apply sealant (E336) over head of bolts.

9.2. Apply a bead of parting agent (E307) and then sealant (E336) along top outside edge of tank (1) where tank (1) meets skin of aircraft.

10. **Install four** washers (18) and **bolts (19).**
11. Remove padded support (2).

GO TO NEXT PAGE

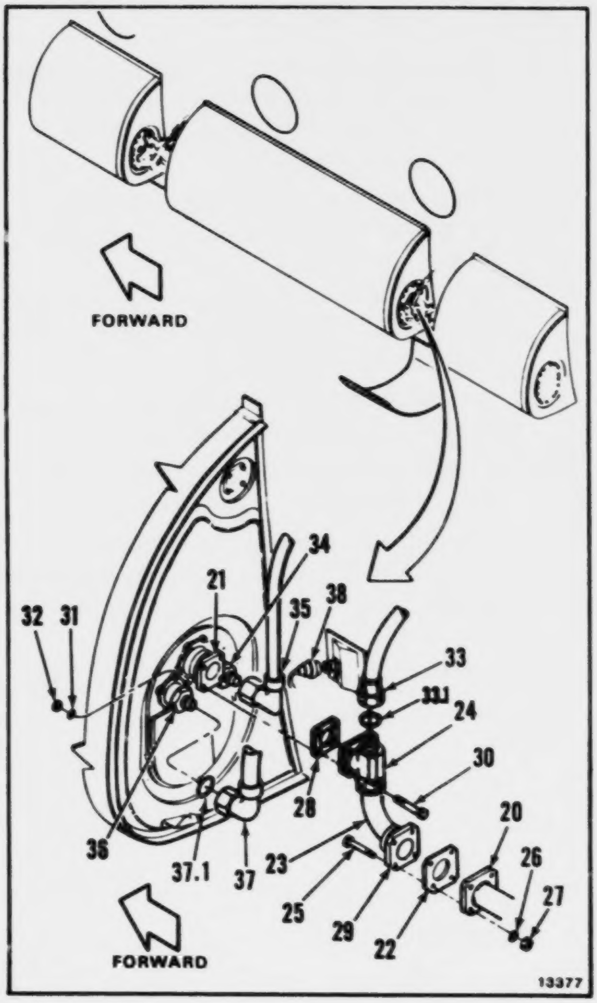
10-21 INSTALL MAIN FUEL TANK (Continued) 10-21

12. Remove barrier material and masking tape from flange of fittings (20 and 21). Clean face of each flange. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).
13. **Position gasket (22), elbow (23), and tee (24). Install four bolts (25),** washers (26), and nuts (27).
14. **Position gasket (28).** Slide elbow (23) forward from adapter (29). **Install four bolts (30),** washers (31), and nuts (32).

CAUTION

Do not allow fittings or elbows to turn when connecting fuel hoses to fittings on aft access panel. Otherwise, fittings can fail and cause blockage.

15. Remove cap from tee (24) and plug from hose (33). Install conical seal (33.1) in hose fitting. Hold tee with wrench and **connect hose to tee.**
16. Remove cap from fitting (34) and plug from hose (35). Hold fitting with wrench and **connect hose to fitting.**
17. Remove cap from fitting (36) and plug from hose (37). Install conical seal (37.1) in hose fitting (37). Hold fitting with wrench and **connect hose to fitting.**
18. **Connect electrical connector (38). Install lockwire (E231).**



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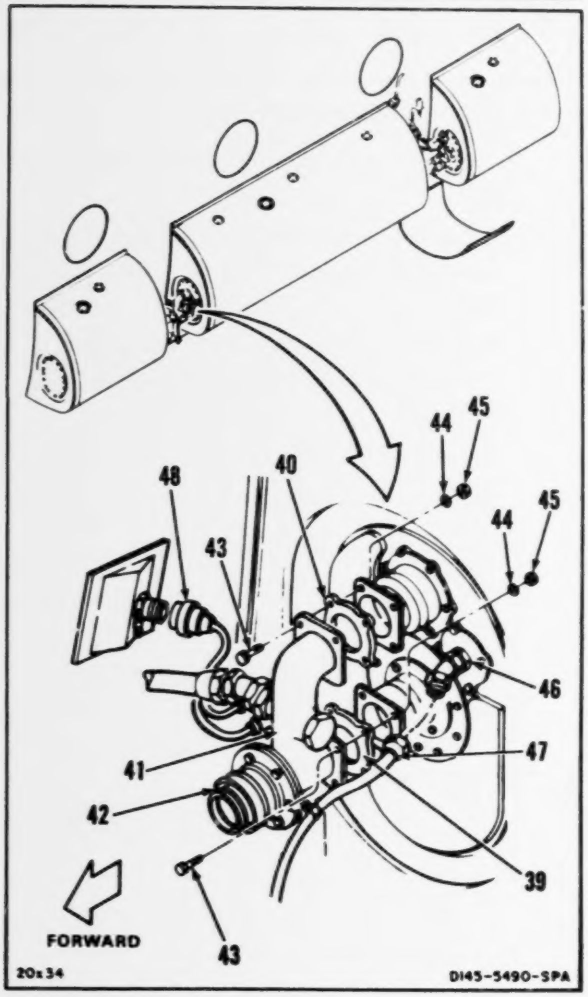
10-21 INSTALL MAIN FUEL TANK (Continued) 10-21

19. **Position gaskets (39 and 40).** Slide manifold (41) aft from adapter (42).
20. **Install eight bolts (43),** washers (44), and nuts (45).
21. Remove cap from fitting (46) and plug from hose (47). Hold fitting with wrench and **connect hose to fitting.**
22. Connect electrical connector (48). Install lockwire (E231).

INSPECT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10-21 INSTALL MAIN FUEL TANK (Continued) 10-21

FOLLOW-ON MAINTENANCE:

Test main tank after installation (Task 10-22).

Perform vent system pressure test (Task 10-117) and flow test (Task 10-118) on affected tank.

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel all tanks (Task 1-51).

Check for leaks (Task 10-4).

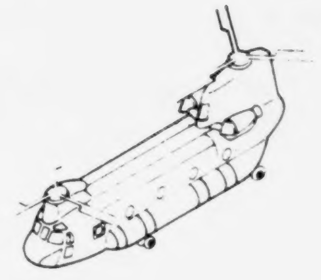
Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Install forward landing gear access panel (Task 2-179 or 2-181).

Close and secure aft intertank pod panel (Task 2-188).

Install main fuel tank vent fairing (Task 10-64).



END OF TASK

10-22 TEST MAIN FUEL TANK AFTER INSTALLATION 10-22

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Aircraft Mechanic Tool Kit, NSN 5180-00-323-4692
- Nitrogen supply with regulator (preferred) or low pressure air source (0-120 psig dry/filtered)
- Air regulator assembly (P/N 538A), NSN 4940-00-200-2096
- Hose, air, general purpose (P/N ZZ-H-521), NSN 4720-00-289-3429
- Vent Valve (P/N MS 35782-2), NSN 4820-00-720-4488
- Shutoff Valve (P/N 13219E9499), NSN 4820-01-015-6690
- Low Pressure Air Gage, 0-15 psig (P/N 1009AL015), NSN 6685-00-729-4434
- High Pressure Air Gage, 0-60 psig (P/N 1009AL060), NSN 6685-00-609-6376
- Stopwatch/timer
- Plug, MITPK, 114200
- Hose clamps (P/N WW-C-440), NSN 4730-00-965-7503
- Tee, pipe (P/N AN917-2), NSN 4730-00-278-3990
- Adapter, straight, pipe to hose (P/N AN840-6), NSN 4730-00-287-1876

Materials:

- Brush (E85)
- Soap (E353)

Parts:

- Packings

Personnel Required:

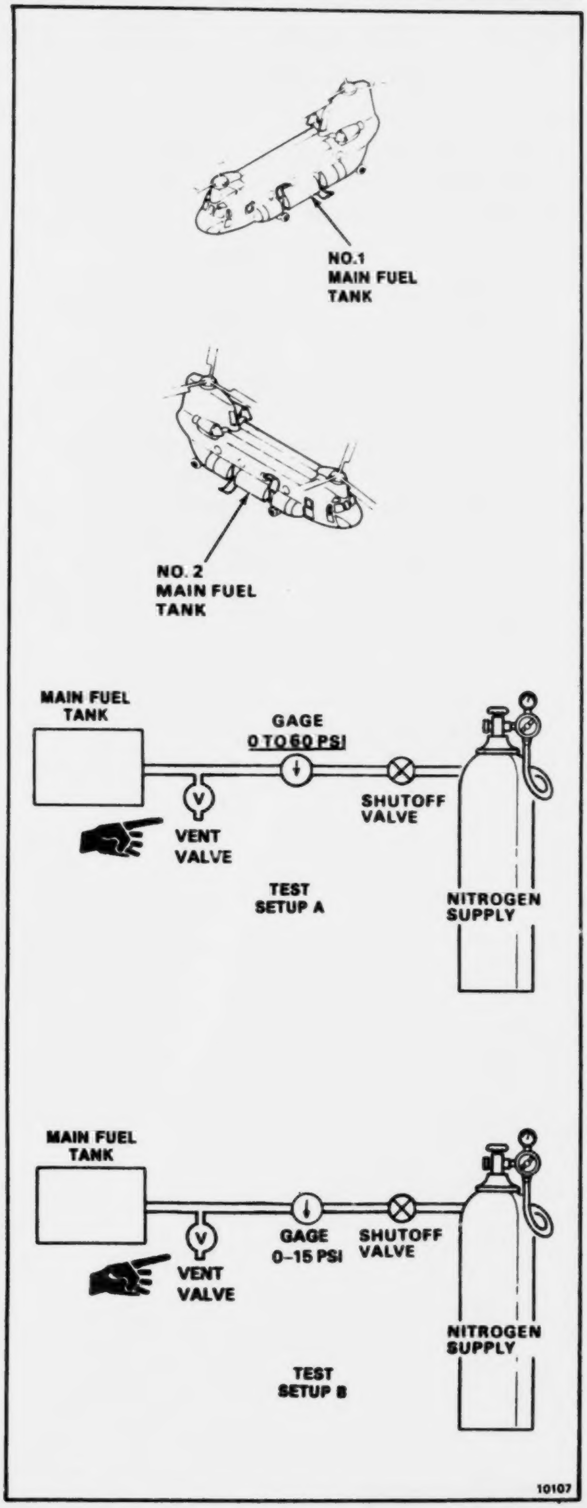
- Medium Helicopter Repairer
- Inspector

References:

- Task 10-41
- Task 10-42
- Task 10-93
- Task 10-94

Equipment Condition:

- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Helicopter Grounded (Task 1-29)
- Affected Side of Helicopter Defueled (Task 10-34 or 10-35)
- Forward Landing Gear Access Panel Open (Task 2-2)


NO.1 MAIN FUEL TANK
NO. 2 MAIN FUEL TANK
MAIN FUEL TANK
GAGE 0 TO 60 PSI
SHUTOFF VALVE
VENT VALVE
TEST SETUP A
NITROGEN SUPPLY
MAIN FUEL TANK
GAGE 0–15 PSI
SHUTOFF VALVE
VENT VALVE
NITROGEN SUPPLY
TEST SETUP B
10107

GO TO NEXT PAGE

10-22 TEST MAIN FUEL TANK AFTER INSTALLATION (Continued) 10-22

Aft Intertank Pod Panel Open (Task 2-185)
Vent System Pressure Tested (Task 10-117)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

CAUTION

Do not allow fittings or elbows to turn when connecting fuel hoses to fittings on access panels. Otherwise, access door fittings can fail and cause blockage.

NOTE

Procedure is same to test No. 1 (left) or No. 2 (right) main fuel tank. No. 1 tank is shown here.

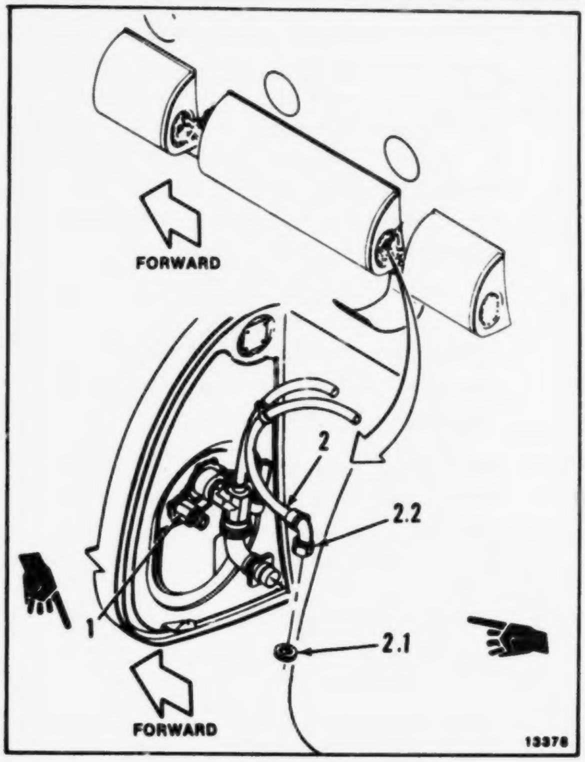
GO TO NEXT PAGE

10-22 TEST MAIN FUEL TANK AFTER INSTALLATION (Continued) 10-22

TEST SETUP A

TEST TANK FUEL SUPPLY SYSTEM

1. Hold fitting (1) with wrench and **disconnect hose (2).** Remove conical seal (2.1) from fitting (2.2). Plug fitting.


FORWARD
2
2.2
1
2.1
FORWARD
13378

GO TO NEXT PAGE

10-22 TEST MAIN FUEL TANK AFTER INSTALLATION (Continued) 10-22

1.1. Ensure Nitrogen/Air supply regulator output pressure is 0 psi.

2. Make sure valves (3 and 4) are closed. **Connect test setup** to fitting (1). Open Nitrogen/Air supply source and regulate pressure to 2 psi at tank regulator (6).

3. Open valve (3) and **allow pressure to stabilize.**

CAUTION

Structural damage to aircraft may occur if more than 4.0 psi is applied.

3.1. Increase pressure at regulator (6) and allow to stabilize at **3.0 psi.** Close valve (3).

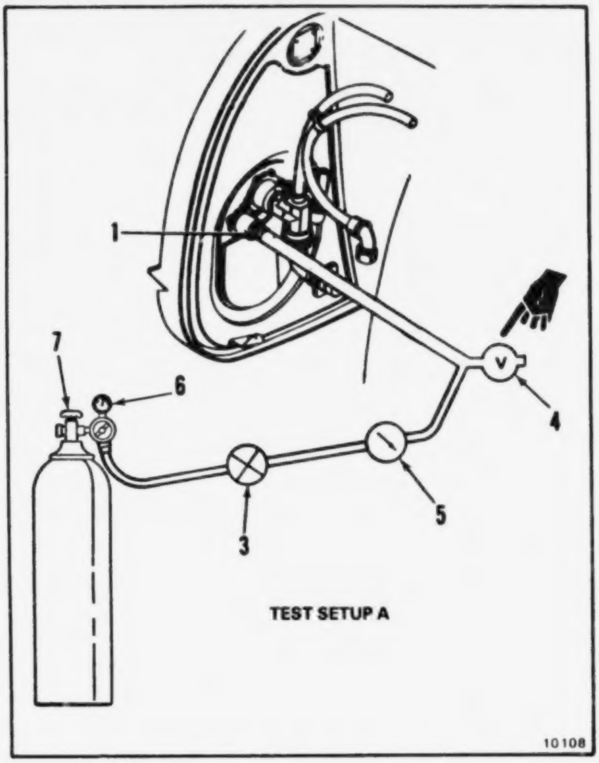
4. **Wait 5 minutes.** Check gage (5). **If gage indicates 2.5 psi or more, go to step 7.**

5. **If gage (5) reads less than 2.5 psi, check test setup connections** at valves (3 and 4), and gage (5). Use mixture of soap (E353) and water, and brush (E85). Keep system under pressure for 15 minutes. If bubbles grow in size, connection is leaking. Tighten connections or replace packings as needed. Also check all joints, seams, and cast components.

6. Repeat steps 3 through 4. If pressure is less than **2.5 psi,** do steps 7 and 8 and **remove fuel lines (Task 10-41).** Check lines and connections. Replace packing if needed. Install lines (Task 10-42). Repeat steps 3 through 5.

7. Shut off Nitrogen/Air Supply (7). Open valve (4) to reduce pressure to 0 psi. Close valve (4).

8. **Disconnect test setup** from fitting (1). Cap fitting.



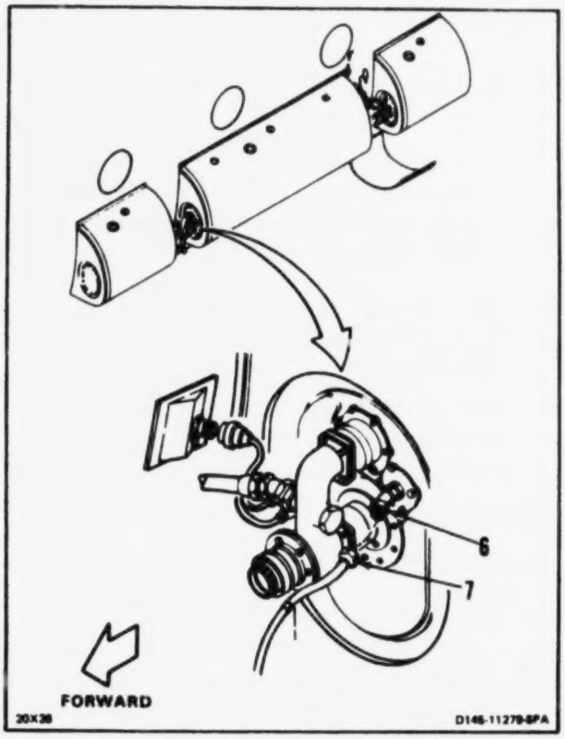
TEST SETUP A

GO TO NEXT PAGE

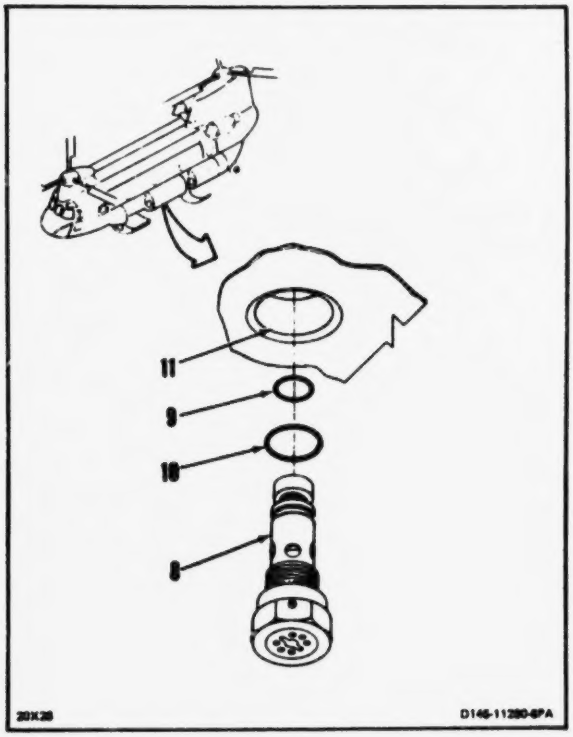
10-22 TEST MAIN FUEL TANK AFTER INSTALLATION (Continued) 10-22

TEST FUEL TANK

9. Hold fitting (6) with wrench and **disconnect hose (7). Cap fitting.**


6
7
FORWARD
20X28
D146-11279-8PA

10. **Remove drain valve (8)** and two packings (9 and 10) (Task 10-93). **Install plug** in port (11).


11
9
10
8
20X28
D146-11280-8PA

GO TO NEXT PAGE

10-22 TEST MAIN FUEL TANK AFTER INSTALLATION (Continued) 10-22

11. Hold fitting (12) with wrench and **disconnect hose (13).** Remove conical seal (12.1) from hose fitting (12.2).

TEST SETUP B

12. **Connect test setup B** to fitting (12).

WARNING

Do not allow pressure to exceed 5.0 psi. Damage to helicopter will occur.

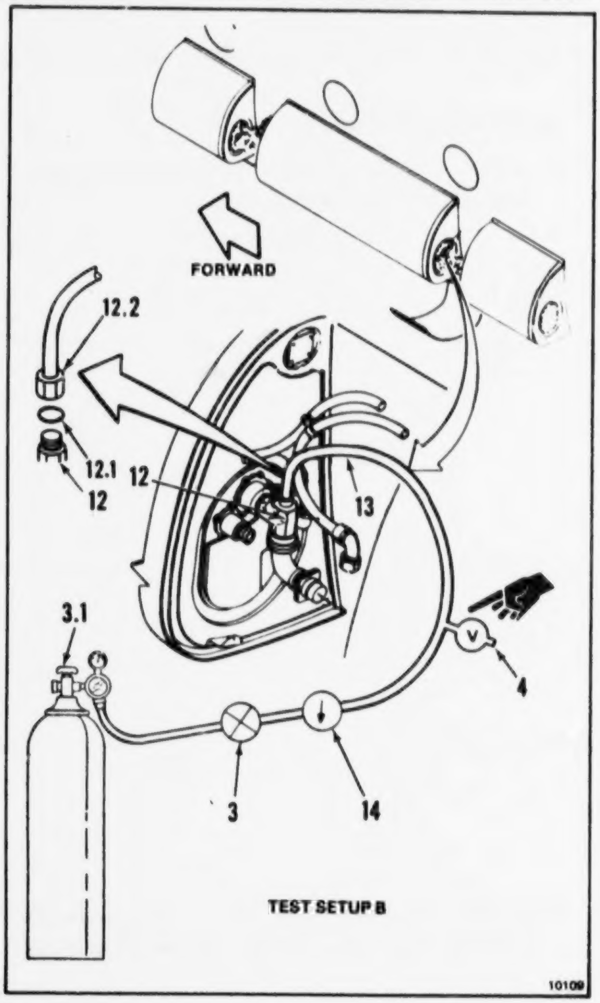
13. Open valve (3) and allow pressure to stabilize at 2 to 4 psi. Close valve. Record gage (14) indications.

14. Wait 15 minutes. Check gage. **If there is no change in pressure, go to step 21. If pressure has dropped, go to step 16.**

CHECK FOR LEAKS

15. **Check for leaks** as follows:

    a. Check test setup connections upstream and downstream of drain valve (3), shutoff valve (4), and gage (14). Use mixture of soap (E353) and water, and brush (E85). Tighten connections or replace packings as needed. Repeat steps 13 and 14.



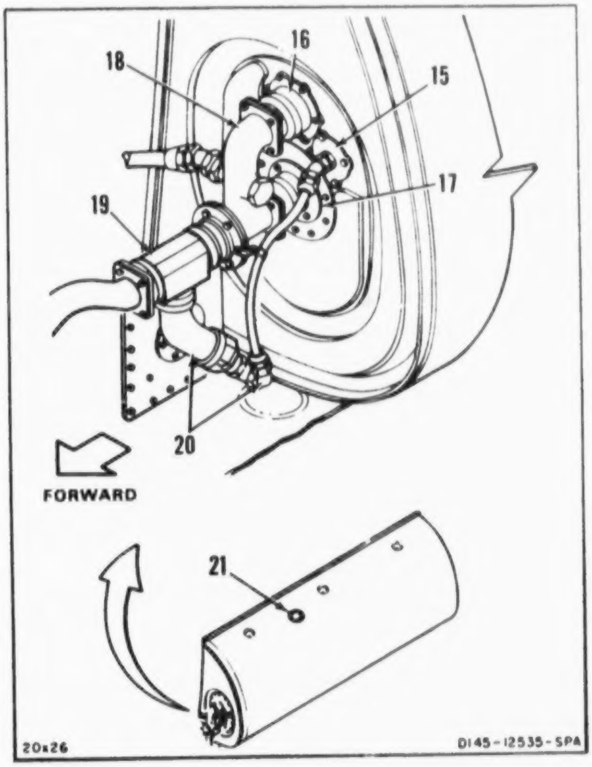
TEST SETUP B

GO TO NEXT PAGE

10-22 TEST MAIN FUEL TANK AFTER INSTALLATION (Continued) 10-22

b. Check forward breakaway fittings (15, 16 and 17), manifold (18), tee (19), and two elbows (20). Apply soap mixture as in step 15.a. Secure fittings, manifold, or elbows. Replace packings, if needed. If leak is found, repeat steps 13 and 14.

c. Check filler adapter (21). Apply soap mixture as in step 15.a. Secure filler adapter, or replace packing if needed. If leak is found, repeat steps 13 and 14.



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d. Check three flanges (22). Apply soap mixture as in step 15.a. Secure flanges or replace packing, if needed. If leak is found, repeat steps 13 and 14.

e. Check two closure plates (23) at ends of tank (24). Apply soap mixture as in step 15.a. Secure closure plates or replace packings if needed. If leak is found, repeat steps 13 and 14.

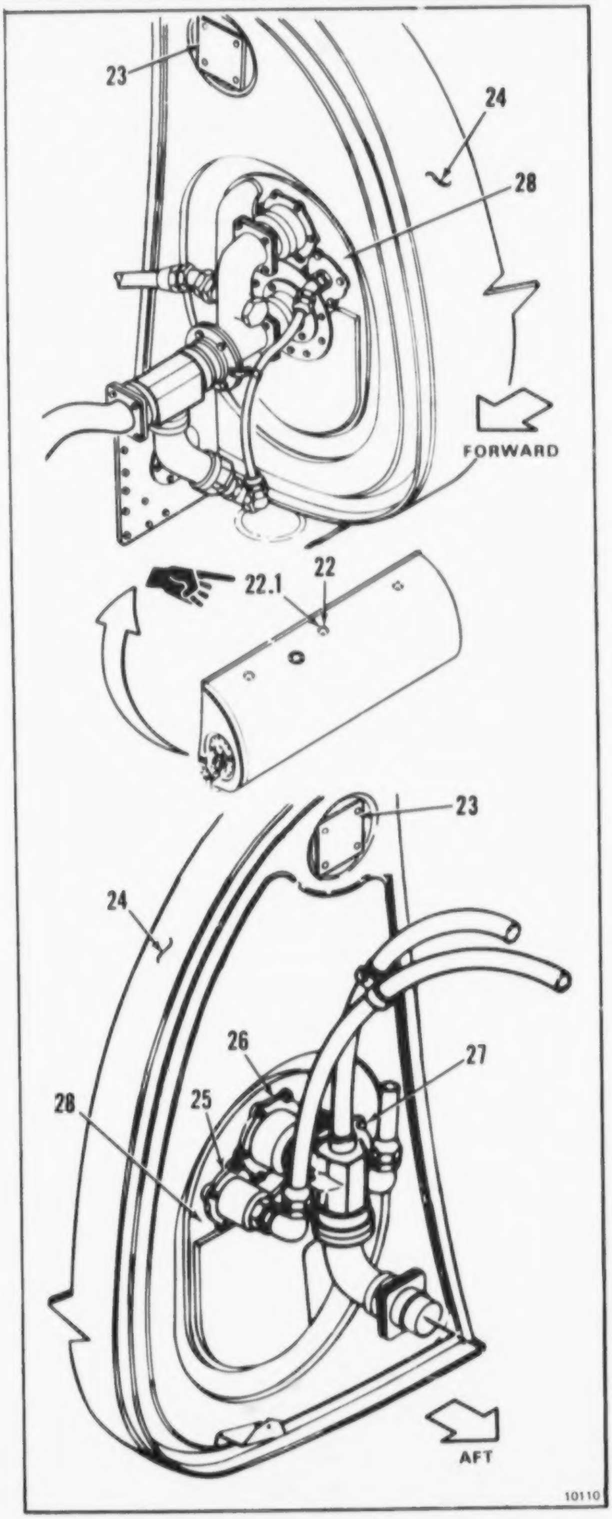
f. Check aft breakaway fittings (25, 26 and 27). Apply soap mixture as in step 15.a. Secure fittings or replace packings, if needed. If leak is found, repeat steps 13 and 14.

g. Check two access doors (28). Apply soap mixture as in step 15.a. Secure access doors or replace packings, if needed. If leak is found, repeat steps 13 and 14.

h. If no leakage is found in steps 15a through g, go to step 21. If leaks are still found, go to step 16.

CHECK FOR LEAKS INSIDE TANK

16. **Remove probe (22)** and gasket (Task 8-81). Check inside of flange (22.1). Check underside of gasket and sealing surfaces. Install probe (Task 8-82).If leak is found, repeat steps 13 and 14.



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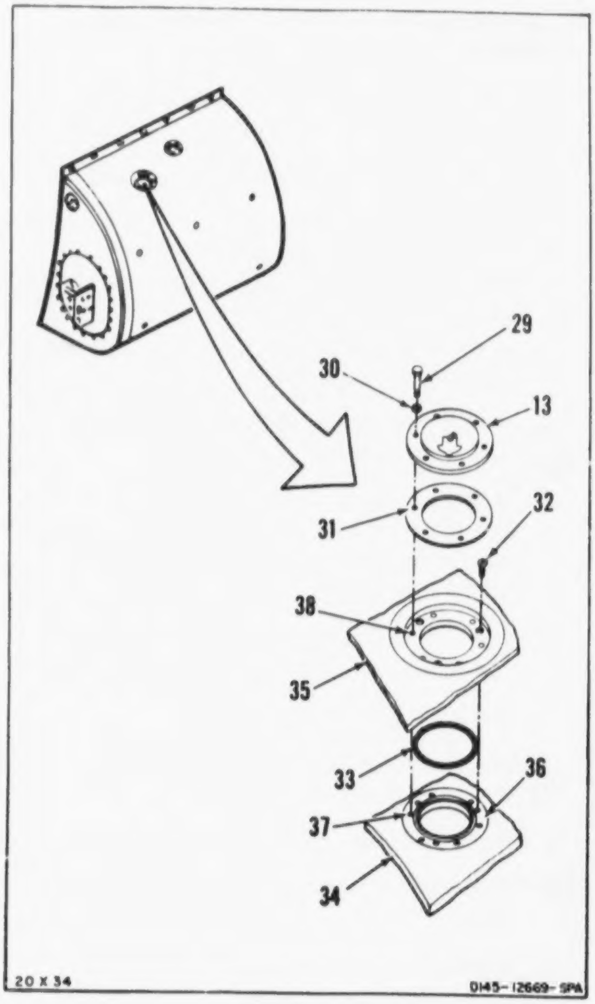
10-22 TEST MAIN FUEL TANK AFTER INSTALLATION (Continued) 10-22

17. **Check inside of filler adapter (13)** as follows:
    a. Remove six bolts (29) and washers (30), adapter (13), and gasket (31).
    b. Remove three screws (32). Remove packing (33).
    c. Check sealing surfaces between cell (34) and pod (35).
    d. Coat packing (33) with petrolatum (E274). **Install packing** carefully in annular groove of cell flange (36). Make sure packing is not disturbed during positioning of fuel cell (34) in pod (35).
    e. Align hole (37) in cell (34) with hole (38) in pod (35). **Install three screws (32).**
    f. **Position gasket (31) and filler adapter assembly (13). Install six bolts (29)** and washers (30). **Torque bolts to 60 to 80 inch-pounds.**
    g. Repeat steps 13 and 14.



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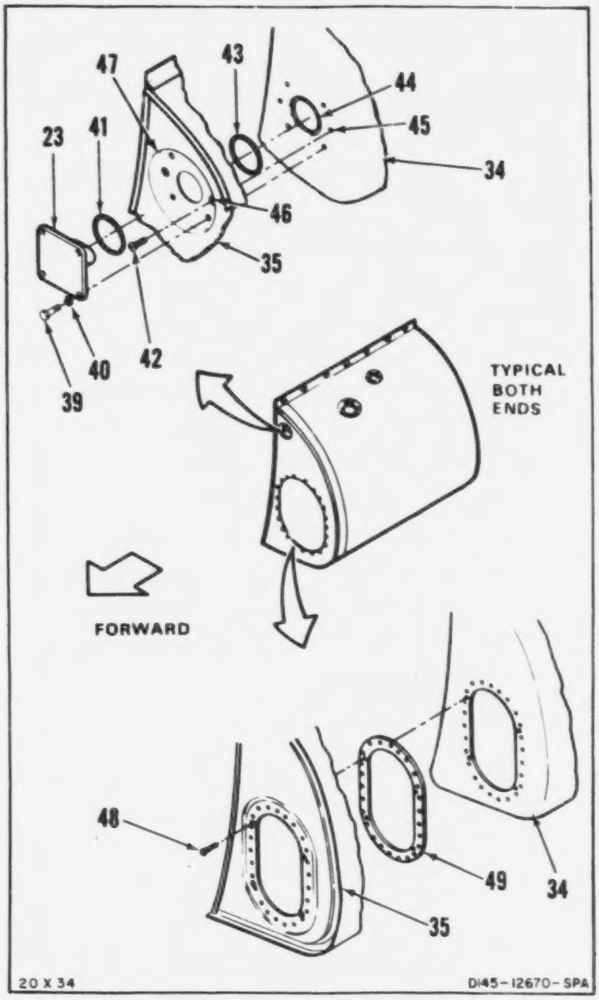
10-22 TEST MAIN FUEL TANK AFTER INSTALLATION (Continued) 10-22

18. **Check inside of forward closure plate (23)** as follows:
    a. Remove four bolts (39), washers (40), and packing (41).
    b. Remove two screws (42) and packing (43).
    c. Coat packing (43) with petrolatum (E274). Install packing carefully in annular groove of flange (44). Make sure packing is not disturbed during positioning of fuel cell (34) in pod (35).
    d. Align holes (45) with holes (46). Install two screws (42).
    e. Coat packing (41) with petrolatum (E274). Install packing carefully in annular groove of pod flange (47). Position closure plate (23) on tank pod (35).
    f. Install four bolts (39) and washers (40). **Torque bolts to 60 to 80 inch-pounds.**
    g. Repeat steps 13 and 14.
19. **Check inside of forward access door (28).**
    a. Remove access door (28) (Task 10-51).
    b. Remove four screws (48). Remove gasket (49).
    c. Lightly smear both sides of gasket (49) with petrolatum (E274).
    d. Position gasket between pod (35) and cell (34).
    e. Align pod (35), gasket (49), and cell (34). Install four screws (48).
    f. Install access door (28) (Task 10-52).
    g. Repeat steps 13 and 14.
20. **Repeat steps 18 and 19 at aft end of tank (24).**



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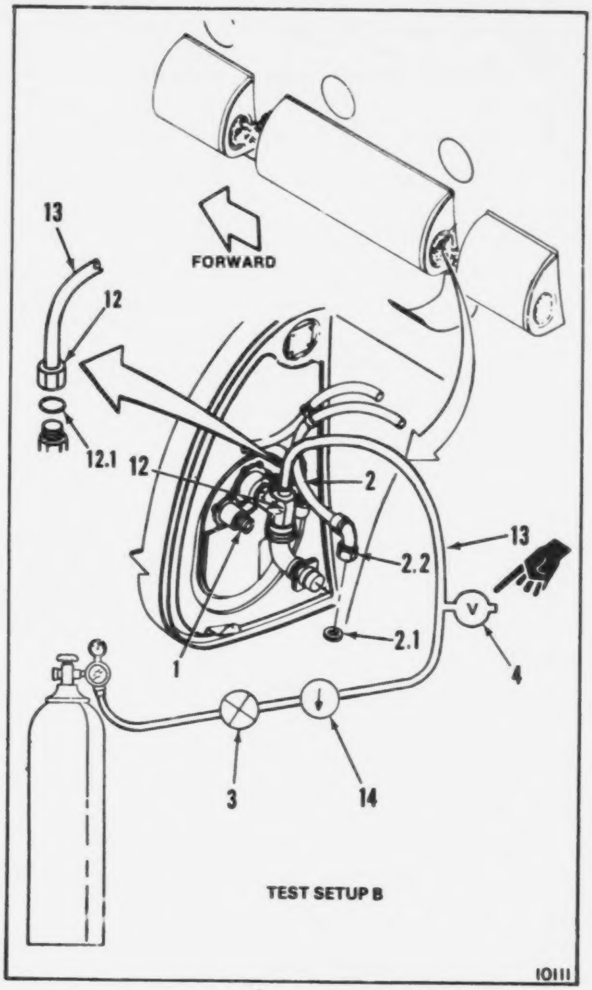
10-22 TEST MAIN FUEL TANK AFTER INSTALLATION (Continued) 10-22

21. Open vent valve (4) and **reduce pressure to 0 psi.**
22. **Disconnect test setup B from fitting (12).**
23. Install conical seal (12.1) in hose fitting (12). Hold fitting with wrench and **connect hose (13).**
24. Remove cap from fitting (1) and plug from hose (2). Install conical seal (2.1) in hose (2) fitting. Hold fitting with wrench and **connect hose.**


13
FORWARD
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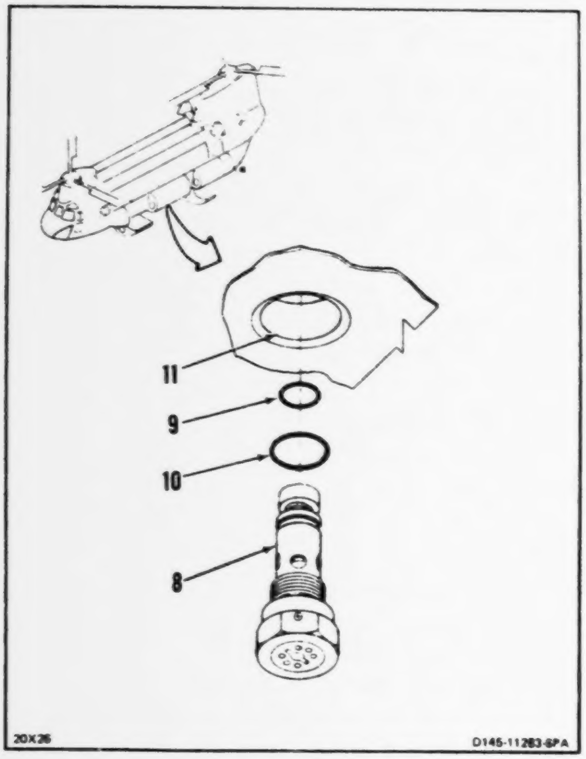
12.1
12
2
13
2.2
V
2.1
4
1
3
14
TEST SETUP B
10111

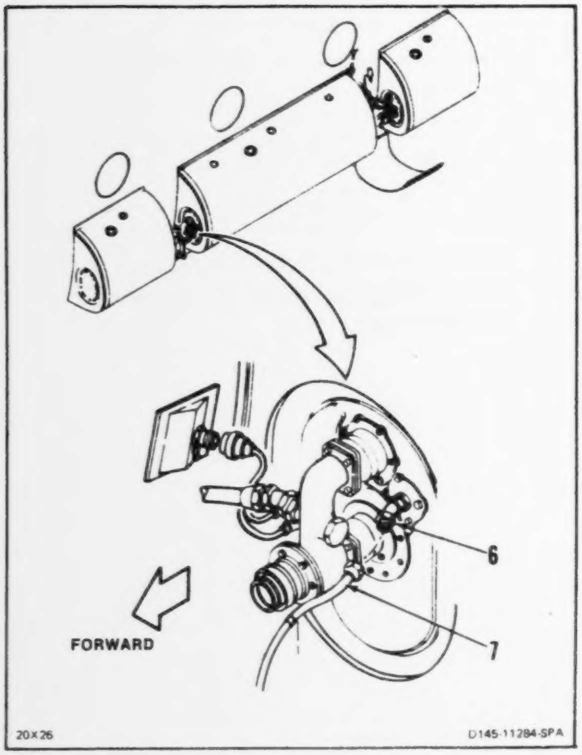
GO TO NEXT PAGE

10-22 TEST MAIN FUEL TANK AFTER INSTALLATION (Continued) 10-22

25. Remove plug from port (11). Install two packings (9 and 10) on valve (8). **Install valve in port** (Task 10-40).



26. Remove cap from fitting (6) and plug from hose (7). Hold fitting with wrench and **connect hose.**



INSPECT

FOLLOW-ON MAINTENANCE:

Perform vent system flow test (Task 10-118) on affected tank.

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel main tank (Task 1-51).

Check for leaks (Task 10-4).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Close forward landing gear access panel (Task 2-2).

Close aft intertank pod panel (Task 2-188).

END OF TASK

10-23 REMOVE FORWARD FUEL TANK 10-23

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Padded Support
Open End Wrench, 1 1/2-Inch
Open End Wrench, 1 7/8-Inch

Materials:
Cloths (E135)
Penetrating Lubricant (E236)
Barrier Material (E80)
Tape (E388)

Personnel Required:
Medium Helicopter Repairer (2)

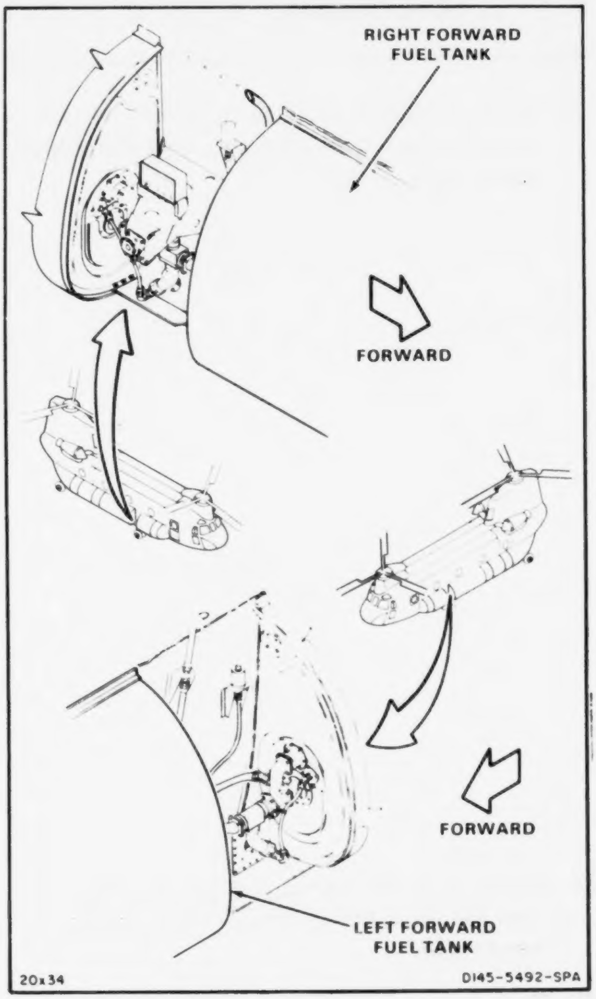
References:
Task 1-22
Task 2-107

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
All Fuel Tanks Defueled (Task 10-34 or 10-35)
Fuel Tank Purged (Task 10-2)
Forward Landing Gear Access Panel Removed (Task 2-178 or 2-180)
Forward Landing Gear Outboard Wheel Removed (Task 3-9)
Two Quart Grounded Container

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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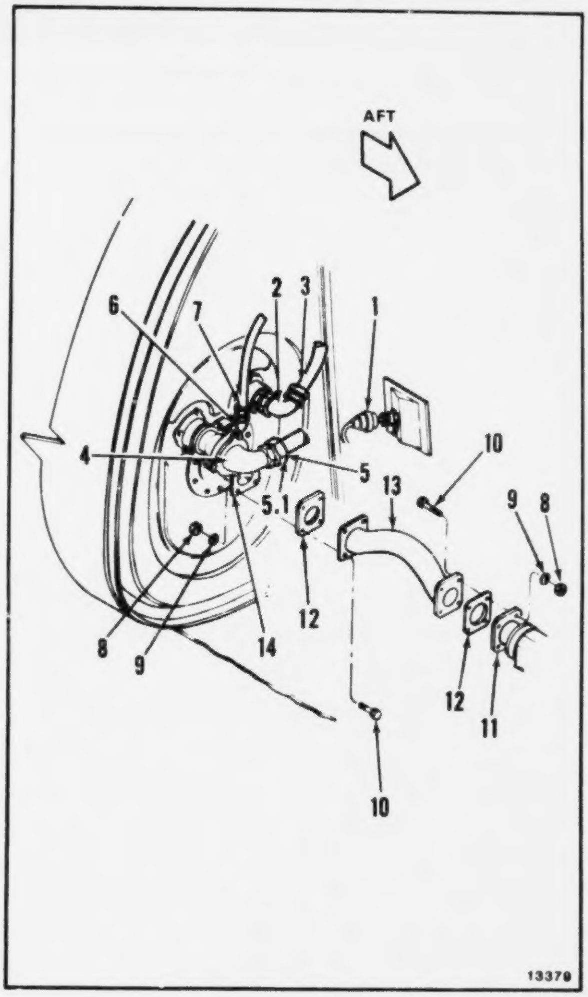
10-23 REMOVE FORWARD FUEL TANK (Continued) 10-23

NOTE

Procedure is same to remove forward fuel tank in No. 1 or No. 2 fuel system. Removal of No. 1 (left) tank is shown here.



LOWER FUEL TANK ON HINGES

1. Remove lockwire. **Disconnect electrical connector (1).**

CAUTION

Do not allow elbows or nipples to turn when disconnecting fuel hoses from aft access panel. Otherwise, fittings can fail and cause fuel blockage.

2. Hold elbow (2) with wrench and **disconnect vent hose (3).** Plug hose and cap elbow.
3. Hold elbow (4) with wrench and **disconnect hose (5).** Remove conical seal (5.1) from hose (5) fitting. Plug hose and cap elbow.
4. Hold nipple (6) with wrench and **disconnect hose (7).** Plug hose and cap nipple.
5. **Remove eight** nuts (8), washers (9), and **bolts (10).**
6. Slide adapter (11) aft.
7. **Remove two gaskets (12) and tube (13).**
8. Cover hole in flange of adapter (11). Use barrier material (E80) and tape (E388).
9. Cover hole in flange of fitting (14). Use barrier material (E80) and tape (E388).

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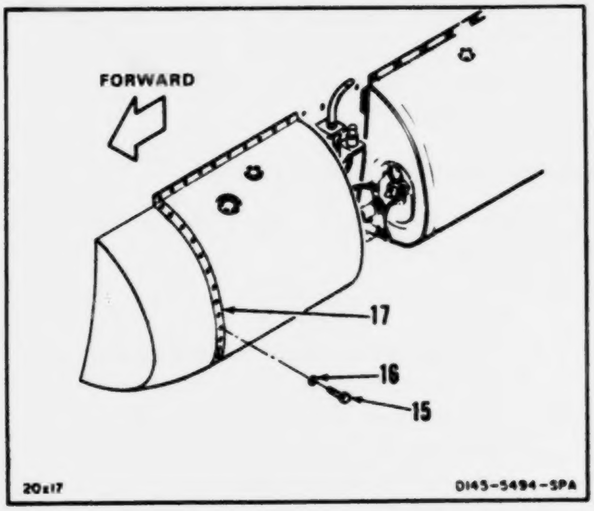
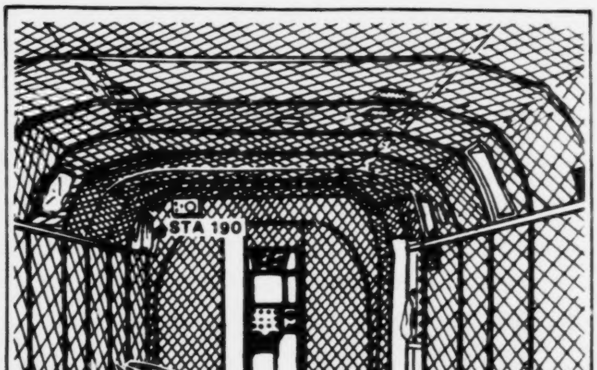
10. **Remove 54 screws (15)** and washers (16) from splice plate (17).


FORWARD
17
16
15
20x17
D145-5494-SPA

11. Remove cabin side acoustic blanket (18) (left side, forward of station 200 and below waterline 0) (Task 2-107).
12. Remove two bolts (19) and washers (20).


STA 190
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D145-12371-SPA

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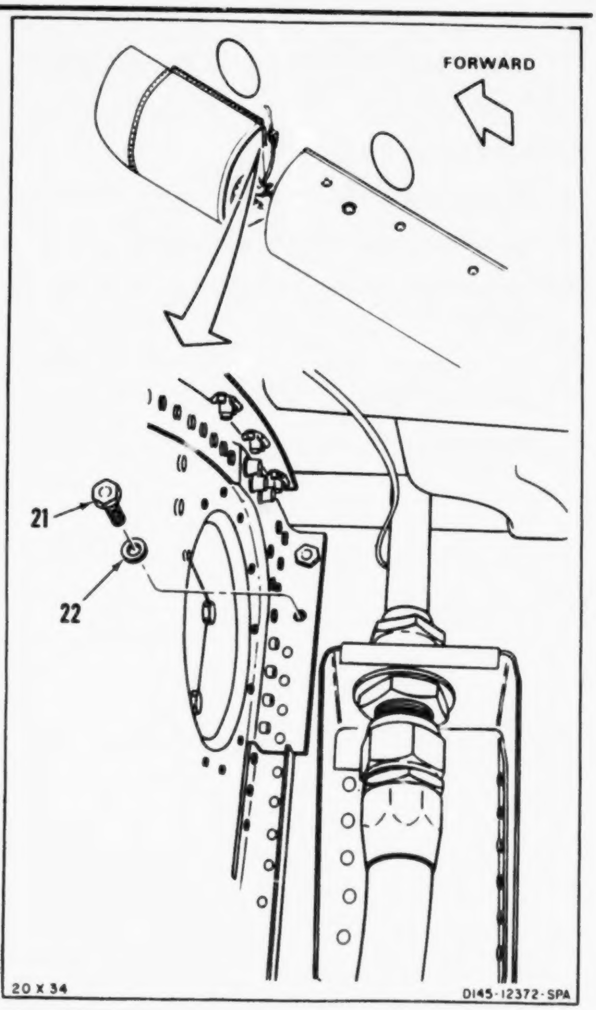
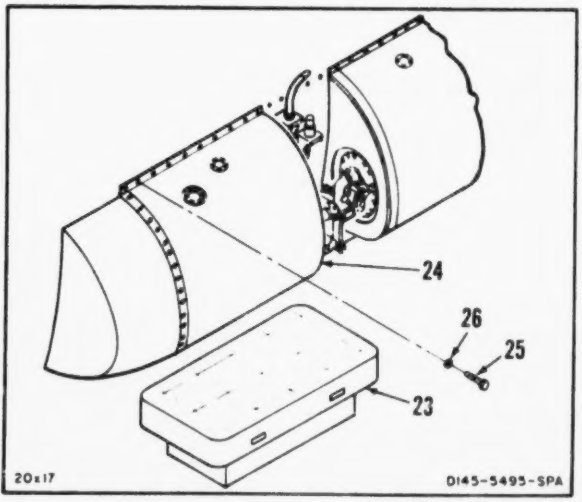
10-23 REMOVE FORWARD FUEL TANK (Continued) 10-23

13. Remove two bolts (21) and washers (22).


FORWARD
21
22
20 X 34
D145-12372-SPA

14. **Jack helicopter** at forward fuselage jack pad (Task 1-22).
15. **Position padded support (23)** at side of tank (24). Make sure padded support prevents tank from touching any part of helicopter.
16. Have helper support tank (24). **Remove 17 bolts (25)** and washers (26).


24
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25
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20x17
D145-5495-SPA

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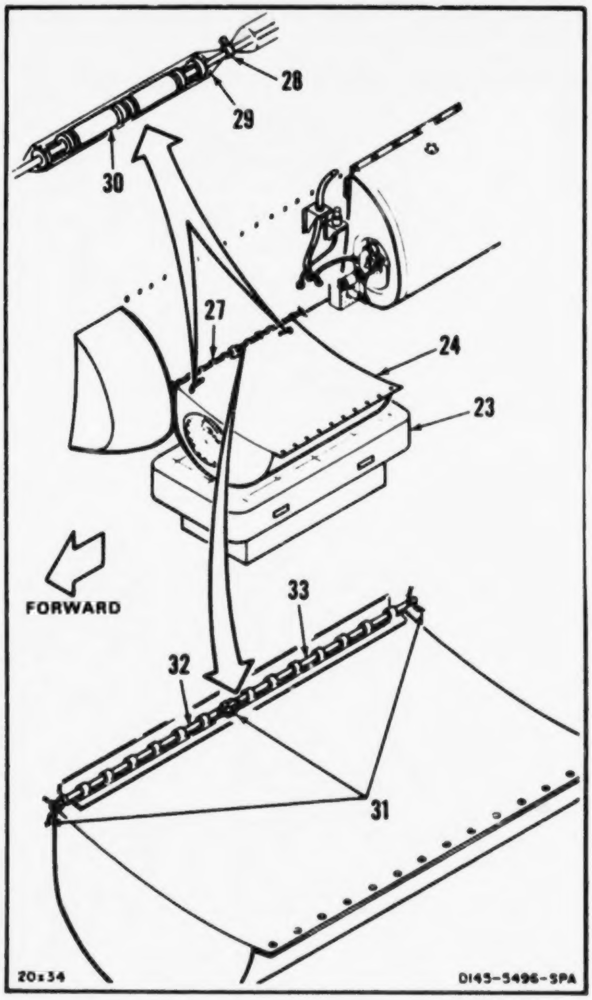
10-23 REMOVE FORWARD FUEL TANK (Continued) 10-23

17. **Lower tank (24)** on hinge (27), onto padded support (23).

REMOVE FUEL TANK

18. **Remove two straps (28)** from sleeves (29).
19. **Disconnect two cable plugs (30).**
20. Spray hinge (27) with penetrating lubricant (E236).
21. Cut lockwire at three places (31) and **remove two hinge pins (32 and 33).**
22. **Remove tank (24).**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FORWARD
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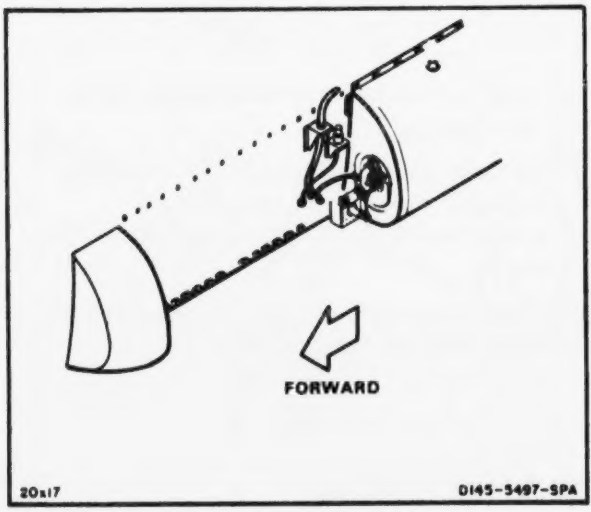
D145-5496-SPA


FORWARD
20x17
D145-5497-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-24 REMOVE FORWARD FUEL TANK CELL 10-24

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Forward Fuel Tank Removed (Task 10-23)
Fuel Quantity Indicating System Tank Unit Removed (Task 8-81)
Forward Fuel Tank Boost Pump Removed (Task 10-69)
Forward Tank Fuel Lines and Electrical Wiring Removed (Task 10-67)
Forward Tank Vent Assembly Removed (Task 10-65)
Fuel Level Control Valve and Mounting Bracket Removed (Task 10-59)
Tank Drain Valves Removed (Task 10-39)
Forward Fuel Tank Vent Valve Removed (Task 10-73)

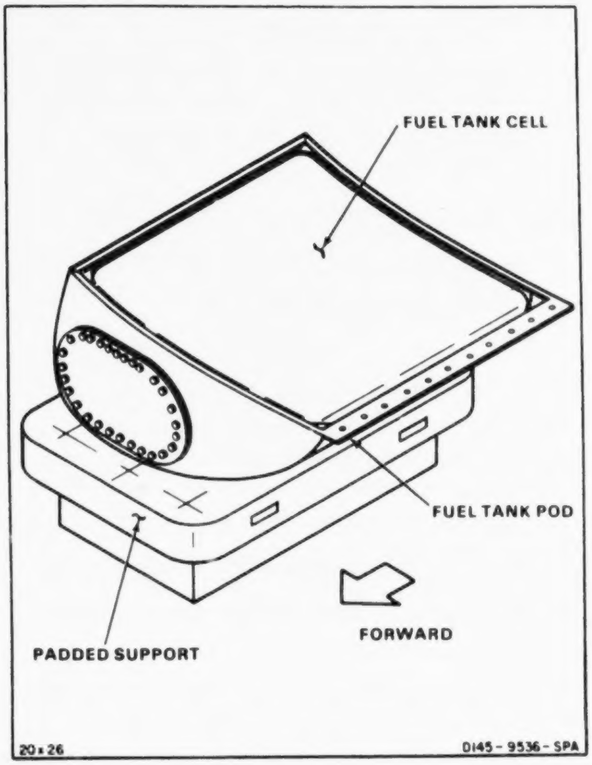
General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.



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NOTE

Procedure is same to remove cell from No. 1 or No. 2 forward fuel tank. Removal of No. 1 (left) cell is shown here.

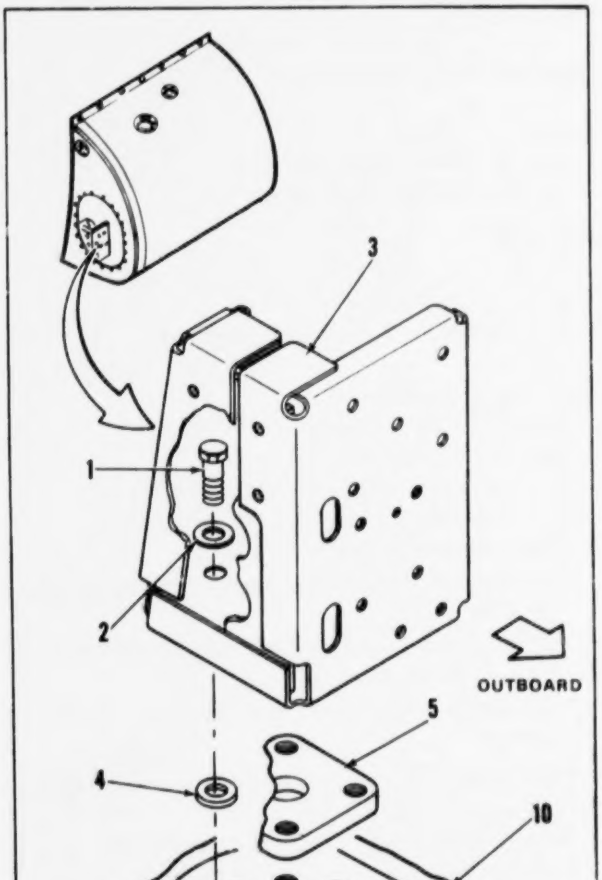
REMOVE BOOST PUMP BRACKET

1. **Remove four bolts (1)** and washers (2).
2. **Remove pump bracket (3).**

NOTE

Four different types of forward fuel cells are used on the helicopter. Each is interchangeable but requires a different washer or adapter between pump bracket and cell.

3. **Remove four washers (4) or adapter (5).**
4. **Remove four bolts (6)** and washers (7) at both ends of cell.
5. **Remove packing (8)** between fuel pod (9) and fuel cell (10) at both ends of cell.



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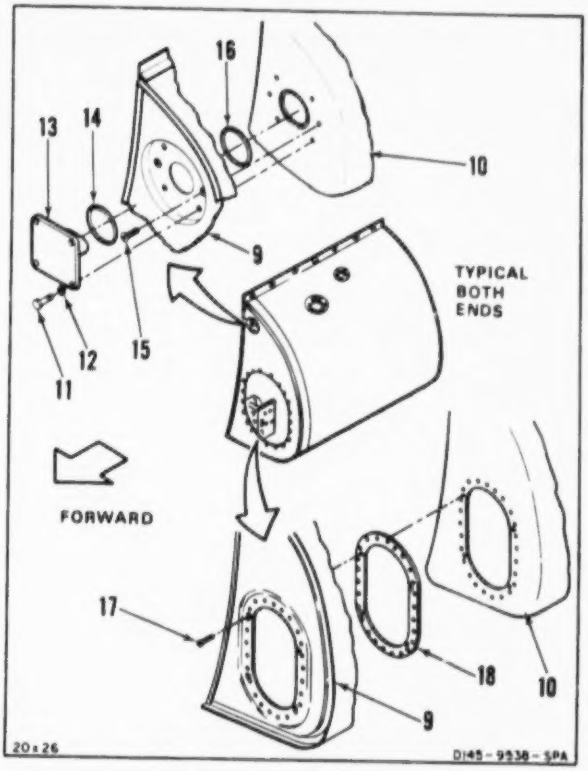
10-24 REMOVE FORWARD FUEL TANK CELL (Continued) 10-24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TYPICAL BOTH ENDS
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FORWARD
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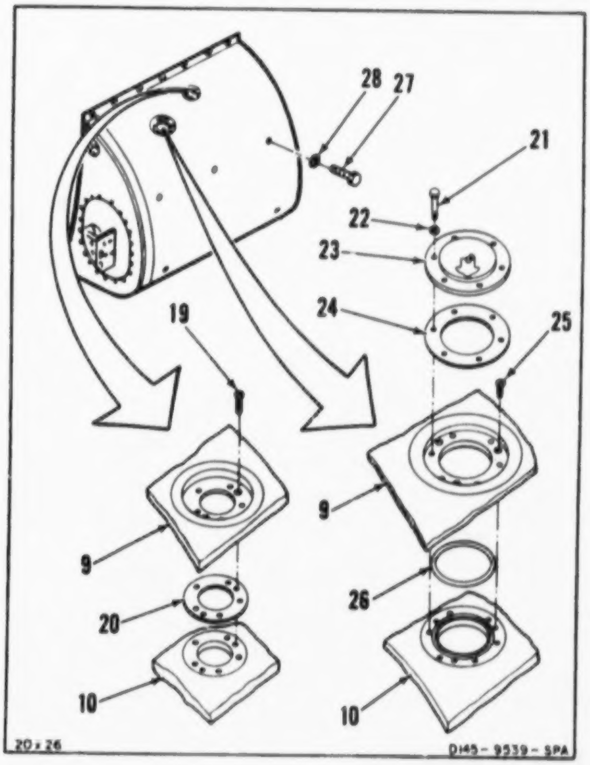
20 x 26
D145-9538-SPA

NOTE

Removal of closure plate and access hole gasket is same at both ends of tank.

6. **Remove four screws (11)** and washers (12). Remove closure plate (13) and packing (14).
7. Remove two screws (15) and packing (16).
8. **Remove four screws (17). Remove gasket (18)** between fuel pod (9) and fuel cell (10).


28 27
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20 x 26
D145-9539-SPA

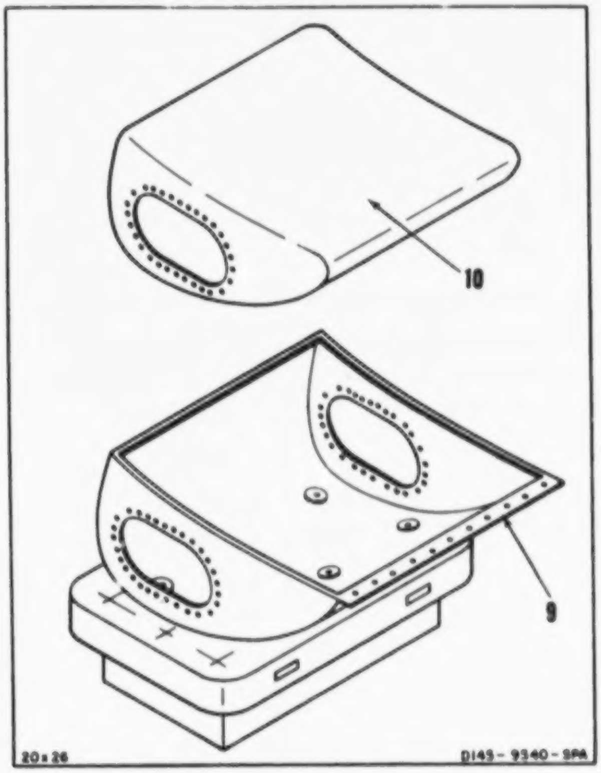
9. **Remove two screws (19).** Separate fuel cell (10) from fuel pod (9). **Remove gasket (20).**
10. **Remove six bolts (21)** and washers (22).
11. **Remove filler adapter assembly (23) and gasket (24).**
12. **Remove three screws (25).** Separate fuel cell (10) from fuel pod (9). Remove packing (26).
13. Remove three bolts (27) and washers (28).

GO TO NEXT PAGE

10-24 REMOVE FORWARD FUEL TANK CELL (Continued) 10-24

14. **Carefully remove fuel cell (10) from pod structure (9).**

FOLLOW-ON MAINTENANCE:
None


10
9
20x26
D145-9340-SPA

END OF TASK

10-24.1 PREPARATION TO REPLACE FORWARD OR AFT FUEL PODS 10-24.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Drill Size O
- Drill Size F

Materials:

- Lockwire (E232)
- Zinc Chromate Primer (E291)
- Gloves (E186)

Personnel Required:

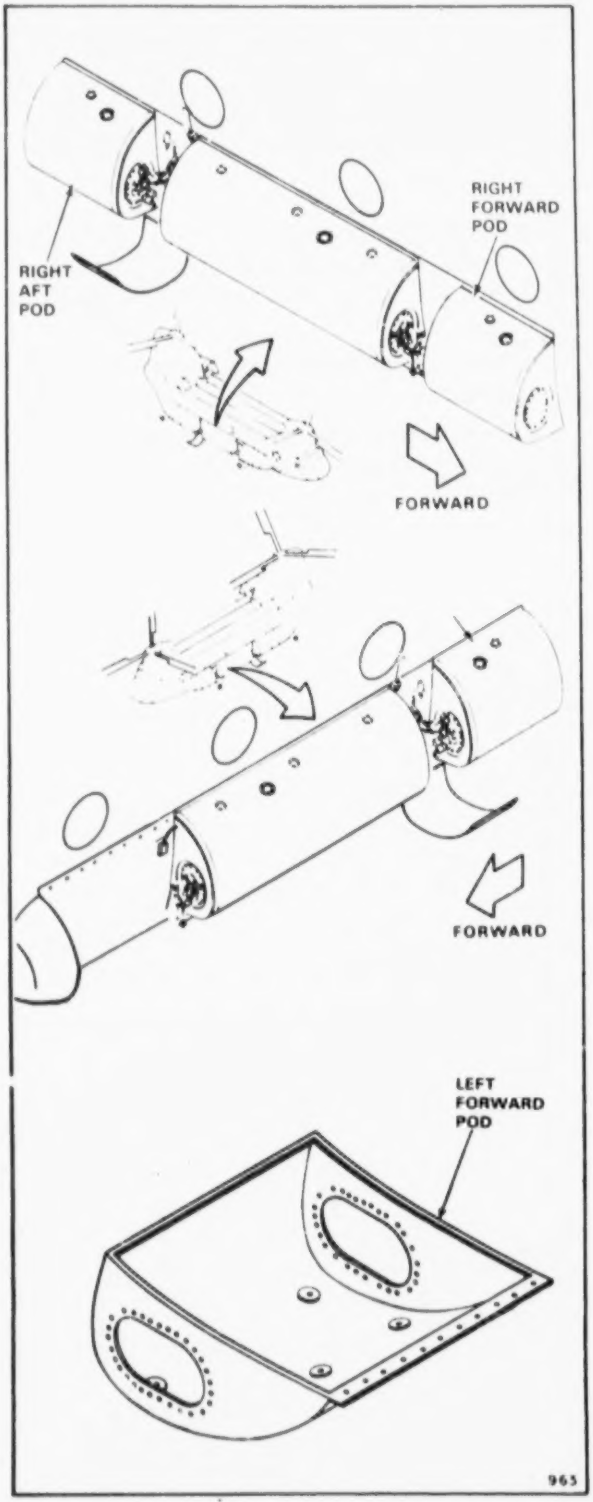
- Structural Repairer (2)
- Inspector

References:

- TM 55-1520-240-23P
- Task 10-25
- Task 10-26

Equipment Condition:

- Forward Left or Right Fuel Tank Removed (Task 10-23)
- Aft Left or Right Fuel Tank Removed (Task 10-28)


RIGHT FORWARD POD
RIGHT AFT POD
FORWARD
FORWARD
LEFT FORWARD POD
965

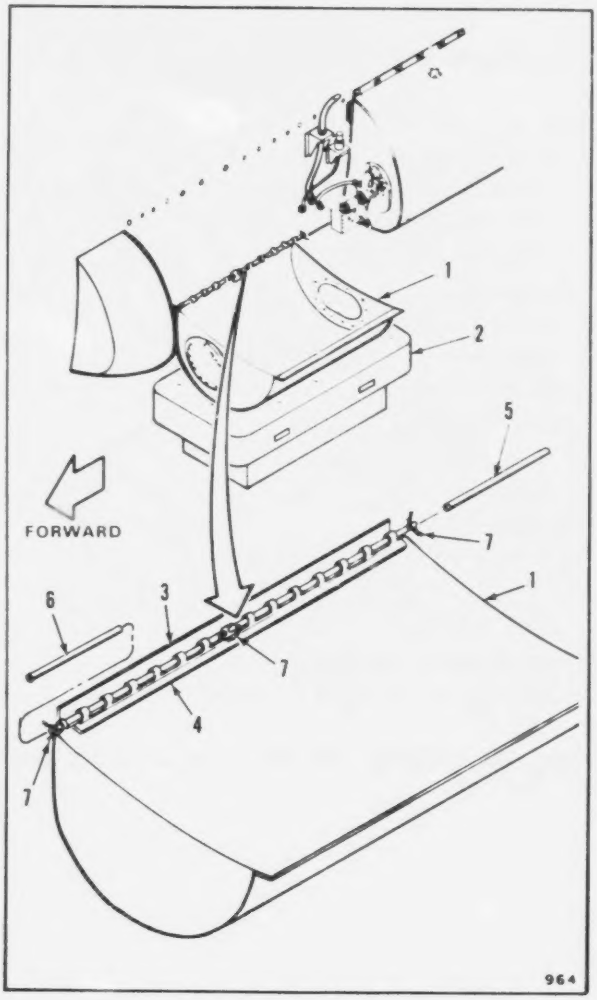
GO TO NEXT PAGE

10-24.1 PREPARATION TO REPLACE FORWARD OR AFT FUEL PODS (Continued) 10-24.1

NOTE

Procedure is same to prepare to replace left or right, forward or aft fuel pods. Left, forward pod is shown here.

1. With aid from helper, position pod (1) on padded support (2) at side of aircraft. Align fuselage hinge half (3) with tank hinge half (4).
2. **Install two hinge pins (5 and 6)** in hinges (3 and 4).
3. **Install lockwire at three places (7)** to secure hinge pins (5 and 6). Use lockwire (E232).



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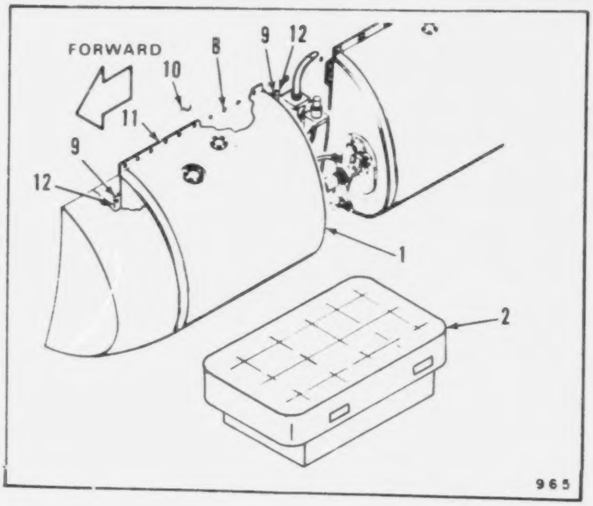
10-24.1 PREPARATION TO REPLACE FORWARD OR AFT FUEL PODS (Continued) 10-24.1

4. **Raise pod (1)** and position against side of aircraft.
5. Working from inside aircraft, **mark 17 bolt holes (8)** along top of pod (1), and 4 holes (9) on sides of pod. Use holes in fuselage (10) as a guide.
6. **Lower pod (1)** on support (2).
7. **Drill 17 holes (8)** in top support angle (11). Deburr holes. Use drill size F.
8. **Drill 4 holes (9)** in side support angle (12). Deburr holes. Use drill size O.



INSPECT

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

9. **Apply primer (E291)** to drilled holes (8 and 9). Wear gloves (E186).
10. **Perform Task 10-25.**
11. **Perform Task 10-26.**

FOLLOV[illegible]N MAINTENANCE:

Pe[illegible] vent system pressure test (Task 10-[illegible] and flow test (Task 10-118) on affected tank.

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

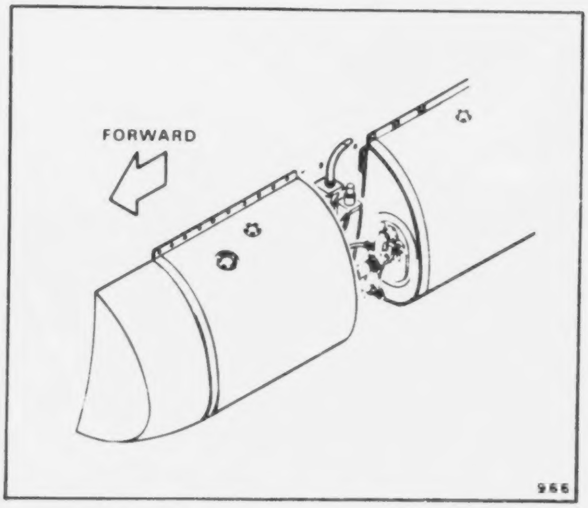
Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-4).

Install forward landing gear access panel (Task 2-179 or 2-181).



END OF TASK

10-25 INSTALL FORWARD FUEL TANK CELL 10-25

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 30 to 150 Inch-Pounds

Materials:
Petrolatum (E274)

Parts:
Packings
Gaskets

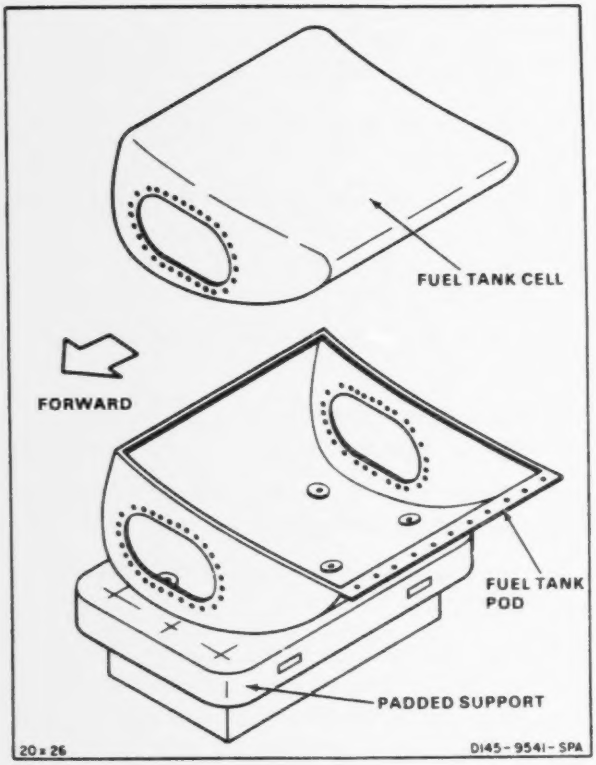
Personnel Required:
67U20 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P
Task 10-40

General Safety Instructions:

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.



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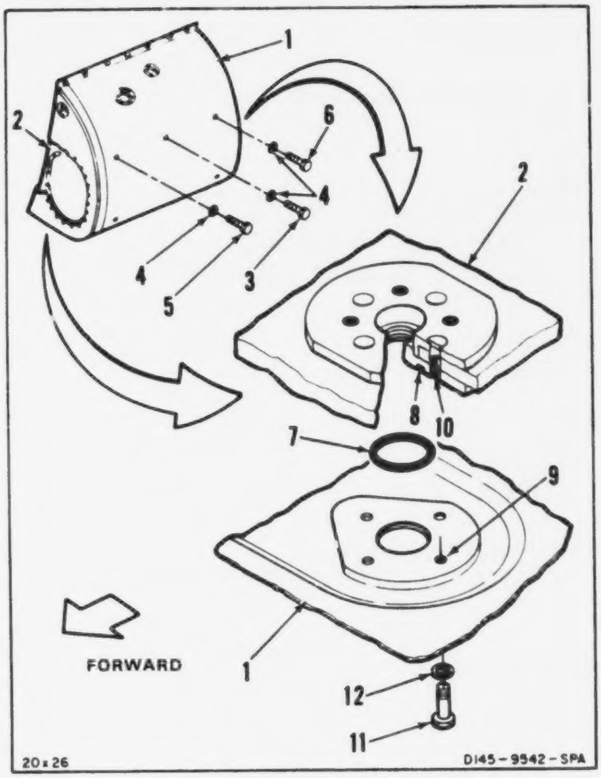
10-25 INSTALL FORWARD FUEL TANK CELL (Continued) 10-25

NOTE

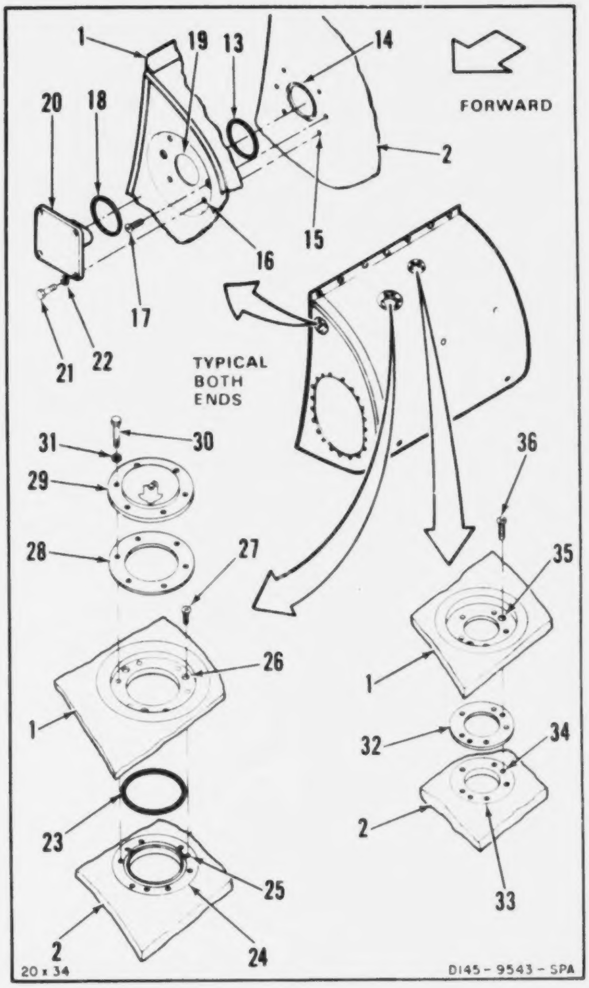
Procedure is same to install cell in No. 1 or No. 2 fuel tank pod. Installation of No. 1 (left) cell is shown here.

1. Make sure interior of fuel tank pod (1) is free of foreign material.
2. **Position fuel cell (2) carefully in tank pod (1).** Insert lower portion of cell in pod. Depress top portion of cell. Position it in and along top portion of tank pod.
3. **Form cell (2) to fit contour of pod structure (1).**
4. **Install bolt (3)** and washer (4). **Do not tighten bolt** at this time.
5. **Install bolts (5 and 6)** and washers (4). **Do not tighten bolts at this time.**
6. **Tighten three bolts (3, 5 and 6) in this order.**
7. Coat two packings (7) with petrolatum (E274). Install packings carefully in annular groove of flange (8) at each end of tank. Make sure that packings are not disturbed during positioning of fuel cell (2) in pod (1).
8. Align holes (9) in pod (1) with holes (10) in cell (2). Install eight bolts (11) and washers (12). **Torque bolts to 60 to 80 inch-pounds.**



10-25 INSTALL FORWARD FUEL TANK CELL (Continued) 10-25

9. Coat two packings (13) with petrolatum (E274). **Install packings** carefully in annular groove of flange (14) at each end of cell (2). Make sure packings are not disturbed during positioning of fuel cell in pod (1).
10. Align holes (15) with holes (16). **Install screws (17).**
11. Coat two packings (18) with petrolatum (E274). **Install packings** carefully in annular groove of cell flange (19). **Position closure plate (20)** at each end of tank pod (1).
12. **Install eight bolts (21)** and washers (22). **Torque bolts to 60 to 80 inch-pounds.**
13. Coat packings (23) with petrolatum (E274). **Install packing** carefully in annular groove of cell flange (24). Make sure packing is not disturbed during positioning of fuel cell (2) in pod (1).
14. Align hole (25) in cell (2) with hole (26) in pod (1). **Install three screws (27).**
15. **Position gasket (28) and filler adapter assembly (29). Install six bolts (30)** and washers (31). **Torque bolts to 60 to 80 inch-pounds.**
16. **Position gasket (32)** on flange (33) of fuel cell (2). Align holes (34) in fuel cell with holes (35) in pod (1). **Install three screws (36).**



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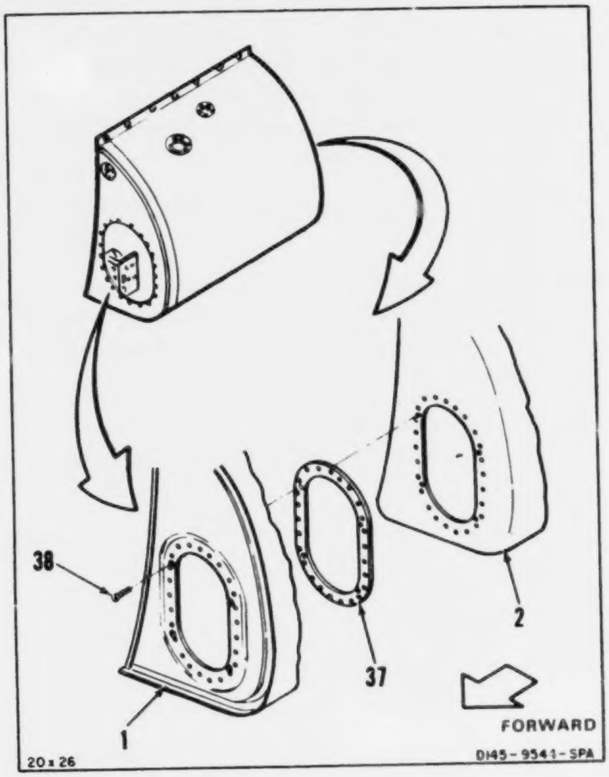
10-25 INSTALL FORWARD FUEL TANK CELL (Continued) 10-25

17. Lightly smear both sides of gasket (37) with petrolatum (E274).
18. **Position gaskets (37)** between fuel pod (1) and fuel cell (2) at both ends of fuel pod.
19. Align fuel pod (1), gaskets (37) and fuel cell (2). **Install four screws (38)** at each end of tank pod.


38
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20 x 26
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10-25 INSTALL FORWARD FUEL TANK CELL (Continued) 10-25

20. **Install fuel tank drain valves** (Task 10-40).

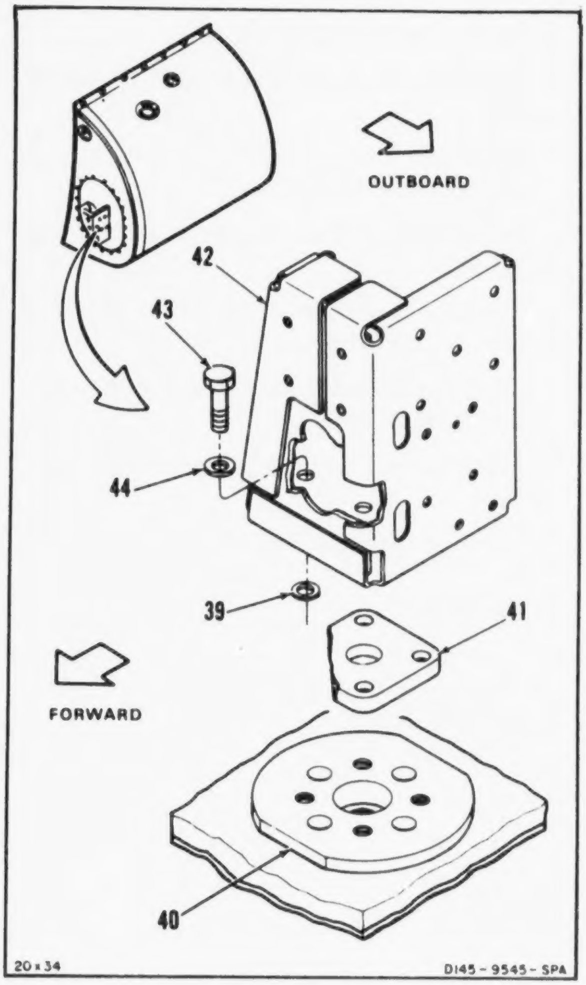
INSTALL BOOST PUMP BRACKET

NOTE

> Four different types of forward fuel cells are used on the helicopter. Each is interchangeable but requires a different washer or adapter between pump bracket and cell.

21. - For fuel cell 145P4056-1 position four washers (39) on cell flange (40).
    - For fuel cells 145P4056-2 or 414PS401-7 or 414PS401-8 position adapter (41) on cell flange (40).
22. **Position pump bracket (42).**
23. **Install four bolts (43)** and washers (44).

INSPECT



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10-25 INSTALL FORWARD FUEL TANK CELL (Continued) 10-25

FOLLOW-ON MAINTENANCE:

Install forward fuel tank vent valve (Task 10-74).

Install fuel level control valve and mounting bracket (Task 10-60).

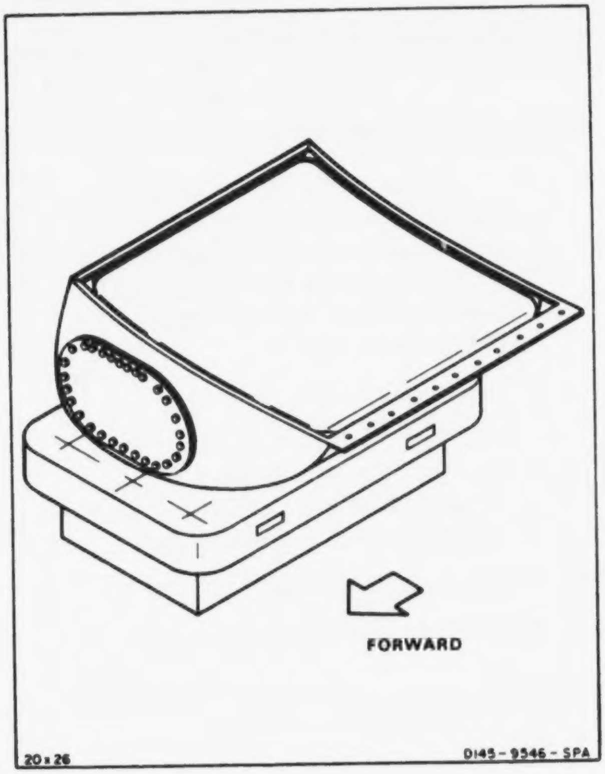
Install forward fuel tank vent assembly (Task 10-66).

Install forward tank fuel lines and electrical wiring (Task 10-68).

Install fuel quantity indicating system tank unit (Task 8-82).

Install forward tank boost pump (Task 10-70).

Install forward fuel tank (Task 10-26).



END OF TASK

10-26 INSTALL FORWARD FUEL TANK 10-26

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic Tool Kit, NSN 5180-00-323-4692

Open End Wrench, 1-1/2 Inch

Open End Wrench, 1-7/8 Inch

Materials:

Cloths (E135)

Gloves (E186)

Lockwire (E231)

Lockwire (E232)

Dry Cleaning Solvent (E162)

Tiedown Straps (E375)

Parting Agent (E307)

Sealant (E336)

Tongue Depressors (E424)

Parts:

Gaskets

Personnel Required:

Medium Helicopter Repairer (2)

Inspector

References:

TM 55-1520-240-23P

Task 1-22

Task 2-108

Task 3-12

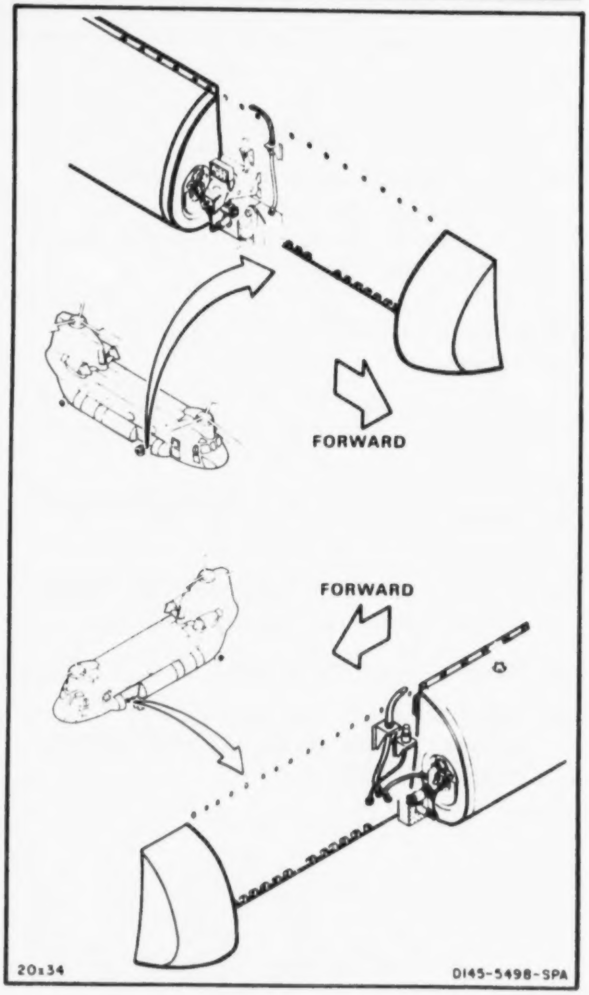
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



WARNING

Parting agent (E307) can form toxic vapors if exposed to flame. Use in well-ventilated area, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

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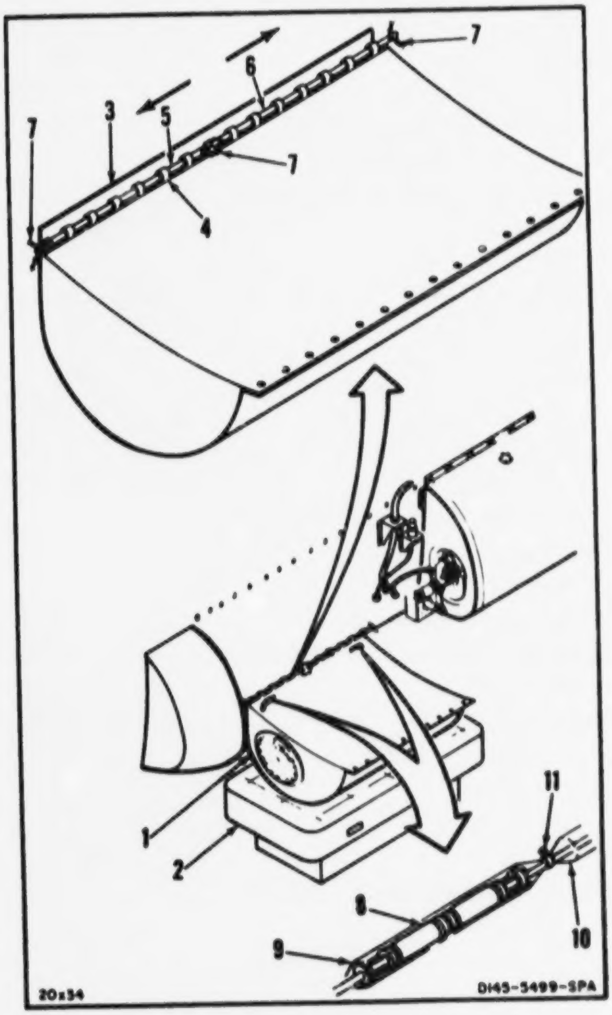


NOTE

Procedure is same to install forward fuel tank in No. 1 or No. 2 fuel system. Installation of No. 1 (left) tank is shown here.

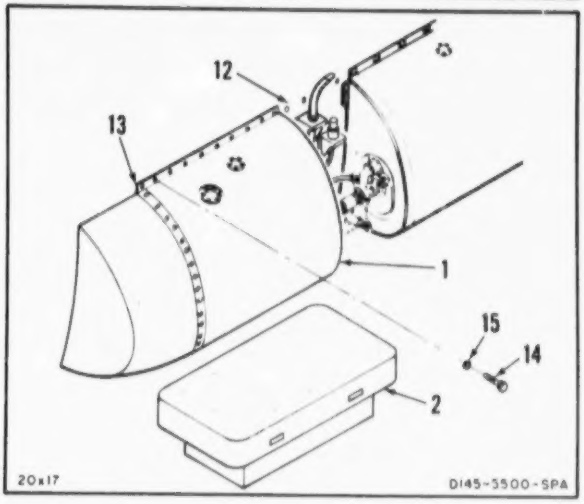
INSTALL FUEL TANK ON HINGES

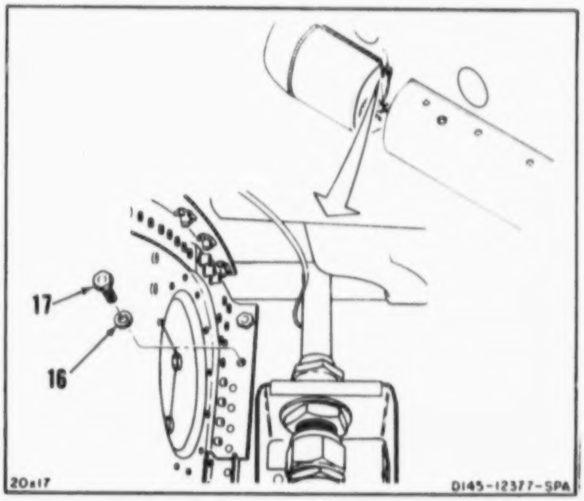
1. **Position tank (1)** on padded support (2) at side of helicopter. Align fuselage hinge half (3) with tank hinge half (4).
2. **Install hinge pins (5 and 6)** in direction of arrows.
3. Install lockwire at three places (7) in hinge pins (5 and 6). Use lockwire (E232).
4. **Connect two cable plugs (8).**
5. Slide sleeves (9) over plugs (8) and tank sleeves (10). Secure sleeves with tiedown straps (E375) (11).

GO TO NEXT PAGE

RAISE AND INSTALL FUEL TANK

6. Clean beam (12) and top edge (13) of tank (1). Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).
7. Apply thin coat of parting agent (E307) along beam (12). Use tongue depressor (E424). Wear gloves (E186).
8. Apply sealant (E336) on top inner edge of tank (13). Use tongue depressor (E424). Wear gloves (E186).
9. With aid from helper, **raise tank (1)** to installed position and support tank.
10. **Install 17 bolts (14)** and washers (15). Apply sealant (E336) over head of bolts.
11. Apply a bead of parting agent (E307) and then sealant (E336) along top outside edge of tank (1) where tank meets skin of aircraft.
12. Remove padded support (2).
13. **Install two** washers (16) and **bolts (17).**





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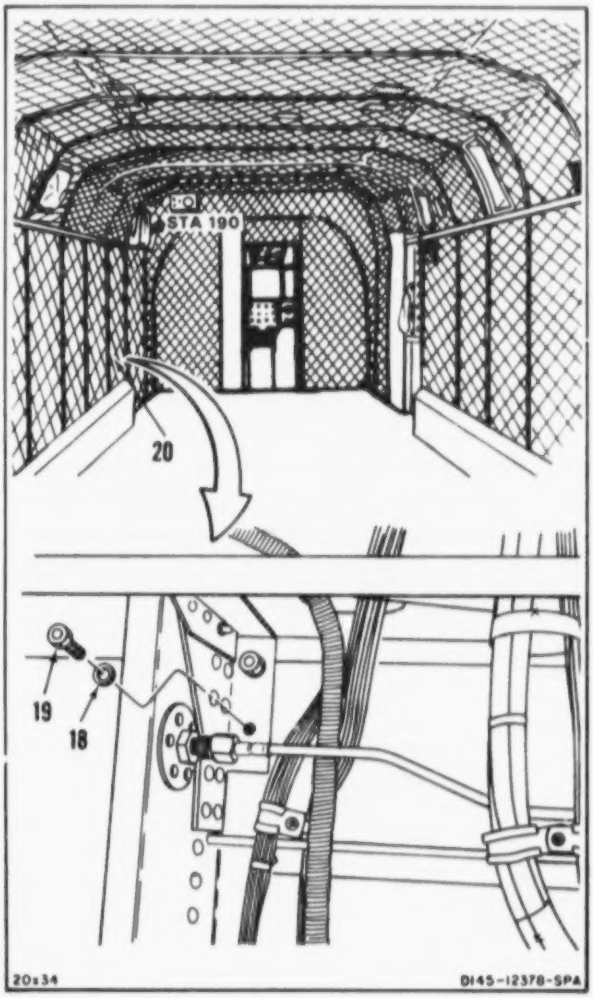
10-26 INSTALL FORWARD FUEL TANK (Continued) 10-26

13. Install two washers (18) and bolts (19).
14. Install cabin side acoustic blanket (20) (Task 2-108).


STA 190
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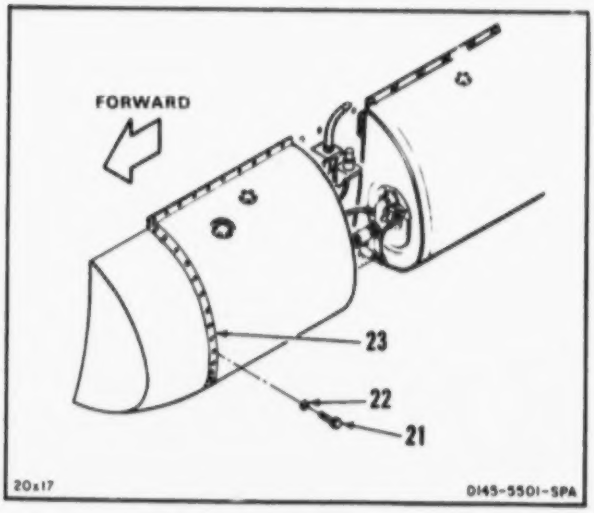
20x34
D145-12378-SPA

15. Install forward landing gear outboard wheel (Task 3-12).
16. **Remove jack** from forward fuselage jack pad (Task 1-22).
17. **Install 54 screws (21)** and washers (22) in splice plate (23).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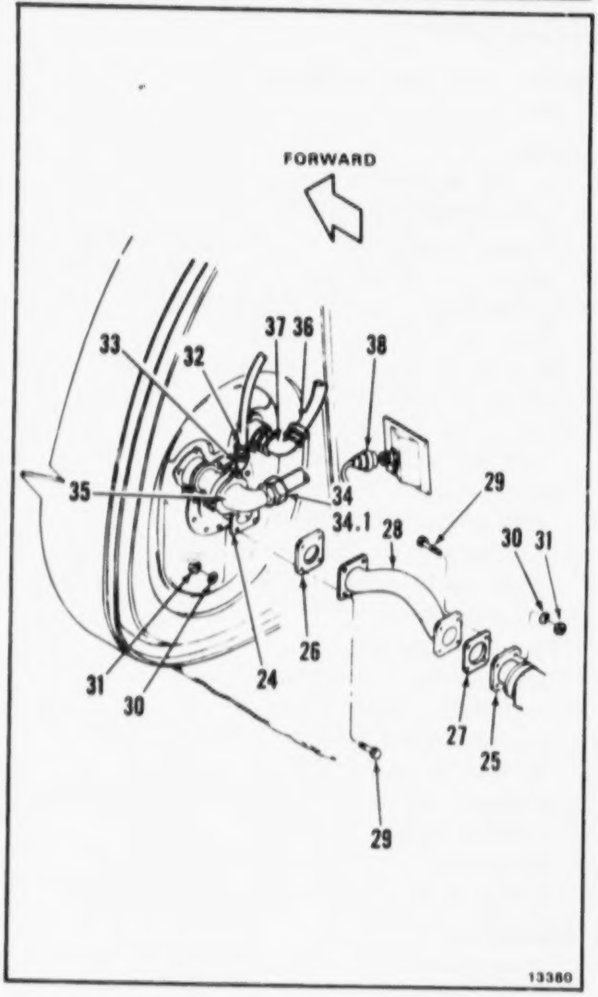
10-26 INSTALL FORWARD FUEL TANK (Continued) 10-26

18. Remove barrier material and tape from flange of fitting (24) and adapter (25). Remove tape residue. Use dry cleaning solvent (E162). Wear goggles to protect eyes. Wear gloves (E186).
19. **Position two gaskets (26 and 27) and tube (28).** Slide adapter (25) forward to position gaskets and tube.
20. **Install eight bolts (29),** washers (30), and nuts (31).

CAUTION

Do not allow nipple or elbows to turn when connecting fuel hoses to aft access door. Otherwise, access door fittings can fail and cause blockage.

21. Remove plug from hose (32) and cap from nipple (33). Hold nipple with wrench and **connect hose** to nipple.
22. Remove plug from hose (34) and cap from elbow (35). Install conical seal (34.1) in hose (34) fitting. Hold elbow with wrench and **connect hose** to elbow.
23. Remove plug from hose (36) and cap from elbow (37). Hold elbow with wrench and **connect hose** to elbow.
24. **Connect electrical connector (38). Install lockwire (E231).**



INSPECT

FOLLOW-ON MAINTENANCE:

Perform vent system pressure test (Task 10-117) and flow test (Task 10-118) on affected tank.

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

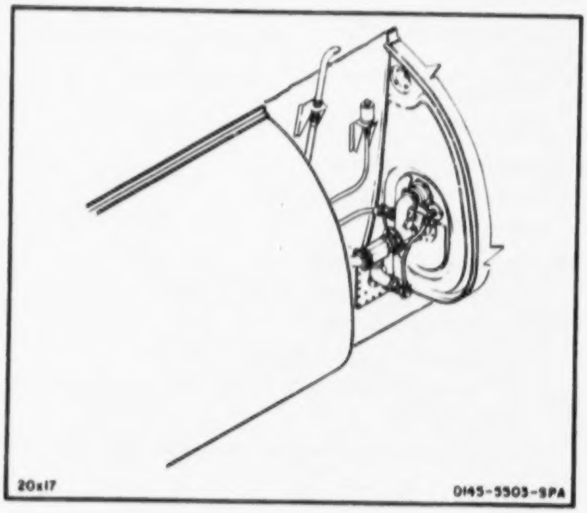
Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-4).

Install forward landing gear access panel (Task 2-179 or 2-181).



END OF TASK

10-27 TEST FORWARD FUEL TANK AFTER INSTALLATION 10-27

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Nitrogen supply with regulator (preferred) or low pressure air source (0-120 psig dry/filtered)
Air regulator assembly (P/N 538A), NSN 4940-00-200-2096
Hose, air, general purpose (P/N ZZ-H-521), NSN 4720-00-289-3429
Vent Valve (P/N MS 35782-2), NSN 4820-00-720-4488
Shutoff Valve (P/N 13219E9499), NSN 4820-01-015-6690
Low Pressure Air Gage, 0-15 psig (P/N 1009AL015), NSN 6685-00-729-4434
Stopwatch/timer
Plug, MITPK, 114200
Hose clamps (P/N WW-C-440), NSN 4730-00-965-7503
Tee, pipe (P/N AN917-2), NSN 4730-00-278-3990
Adapter, straight, pipe to hose (P/N AN840-6), NSN 4730-00-287-1876
Closure Plate, (E-17)
Torque Wrench, 30 to 150 inch-pounds

Materials:

Soap (E353)
Brush (E85)
Petrolatum (E274)

Parts:

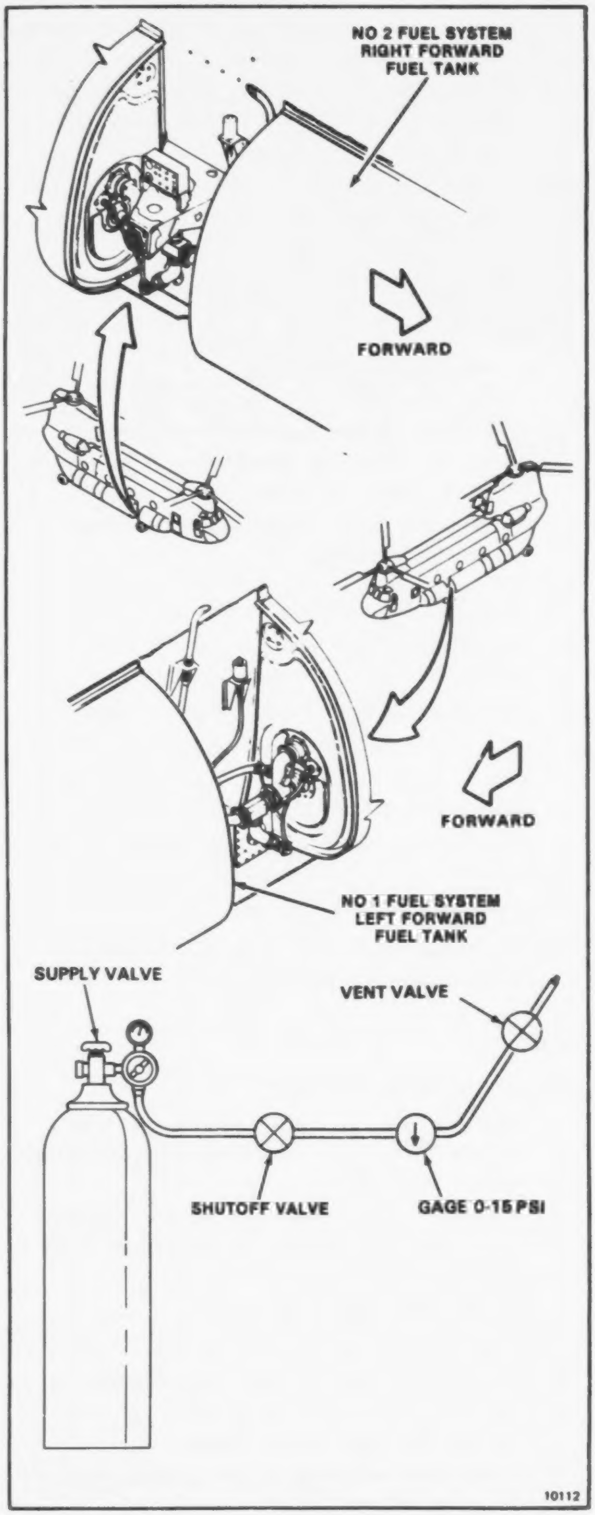
Packings
Gaskets

Personnel Required:

Medium Helicopter Repairer
Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Fuel Tanks Defueled on Affected Side (Task 10-34 or 10-35)
Forward Landing Gear Access Door Open (Task 2-2)


NO 2 FUEL SYSTEM RIGHT FORWARD FUEL TANK
FORWARD
FORWARD
NO 1 FUEL SYSTEM LEFT FORWARD FUEL TANK
SUPPLY VALVE
VENT VALVE
SHUTOFF VALVE
GAGE 0-15 PSI
10112

GO TO NEXT PAGE

10-27 TEST FORWARD FUEL TANK AFTER INSTALLATION (Continued) 10-27

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

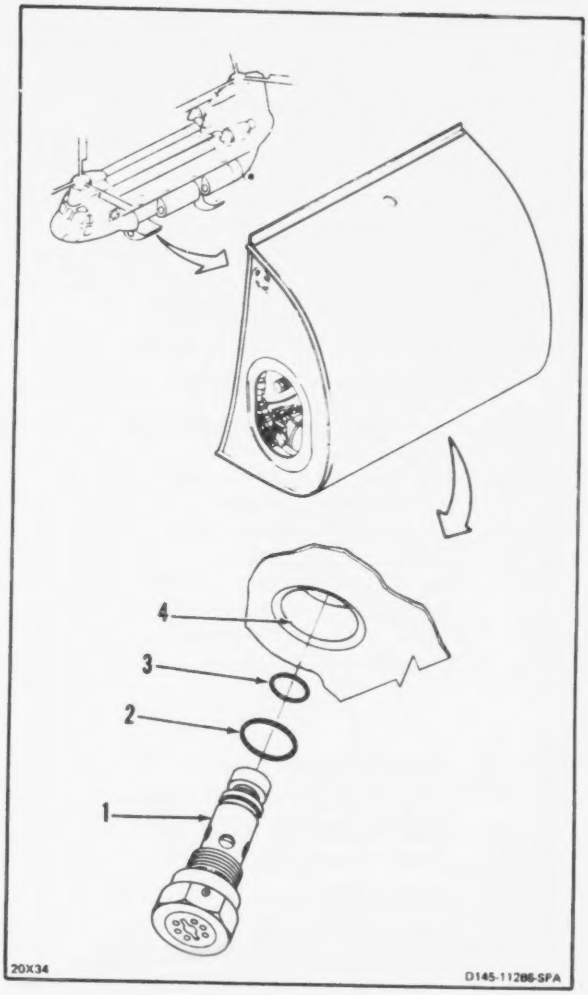
NOTE

Procedure is same to test No. 1 or No. 2 fuel system forward fuel tank. No. 1 forward tank is shown here.

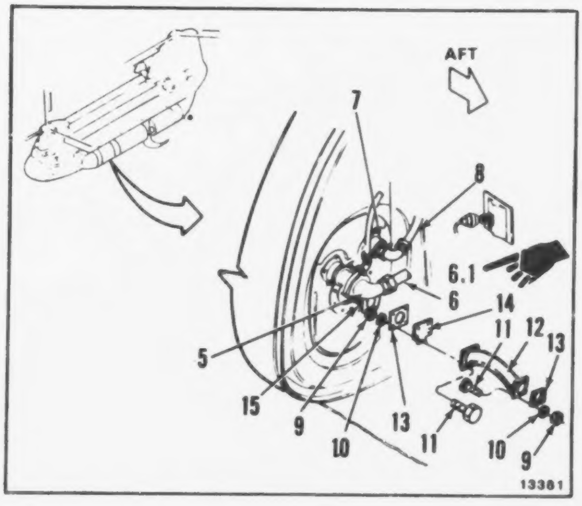
1. **Remove aft drain valve (1)** and two packings (2 and 3). Install plug in port (4).

CAUTION

Do not allow elbows or fittings to turn when disconnecting hoses from access panel. Otherwise, fittings can fail and cause blockage.



2. Hold elbow (5) with wrench and **disconnect hose (6).** Remove conical seal (6.1) from hose (6) fitting. Plug hose and cap elbow.
3. Hold fitting (7) with wrench and **disconnect hose (8). Plug hose (8).**
4. Remove eight nuts (9), washers (10), and bolts (11). Remove tube (12) and two gaskets (13). **Install closure plate (14) and gasket** on adapter (15). Use four bolts, washers, and nuts.



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10-27 TEST FORWARD FUEL TANK AFTER INSTALLATION (Continued) 10-27

5. Make sure valves (16 and 17) are closed. **Connect test setup** to fitting (7).

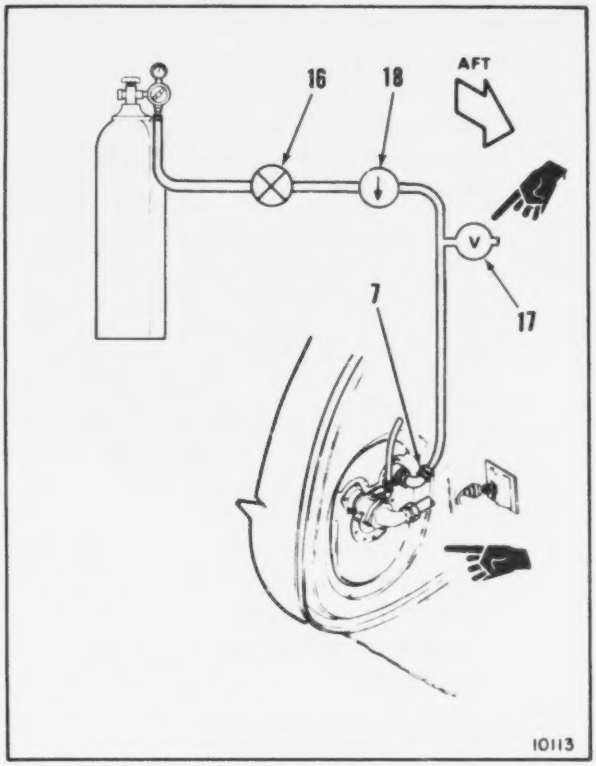
CAUTION

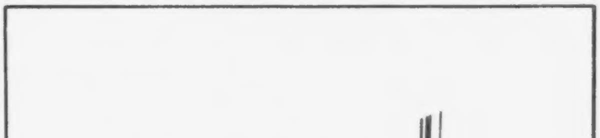
Structural damage to aircraft may occur if more than 4.0 psi is applied.

6. Open valve (16) and **apply 3.0 psi.** Close valve. Do not apply more than 4.0 psi.
7. Wait 15 minutes. Check gage (18). If gage indicates 3.0 psi, go to step 16. If gage indicates less than 3.0 psi, go to step 8.

CHECK FOR LEAKS OUTSIDE TANK

8. **Check for leaks** as follows:
   a. Check test setup upstream and downstream of valves (16 and 17) and gage (18). Use mixture of soap (E353) and water and brush (E85). Allow system to remain under pressure for 15 minutes. If bubbles grow in size, connection is leaking. Tighten leaking connections or replace packings as needed. Also check all joints, seams, and cast components. If leak is found, repeat steps 6 and 7.
   b. Check three fittings (19). Apply soap mixture as in step 8.a. Secure fittings or replace packings if needed. If leak is found, repeat steps 6 and 7.
   c. Check aft access door (20). Apply soap mixture as in step 8.a. Secure access door or replace gaskets, if needed. If leak is found, repeat steps 6 and 7.





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10-27 TEST FORWARD FUEL TANK AFTER INSTALLATION (Continued) 10-27

d. Check flange (21). Apply soap mixture as in step 8.a. Secure flange or replace packing, if needed. If leak is found, repeat steps 6 and 7.

e. Check filler adapter (24). Apply soap mixture as in step 8.a. Secure filler adapter or replace packing, if needed.

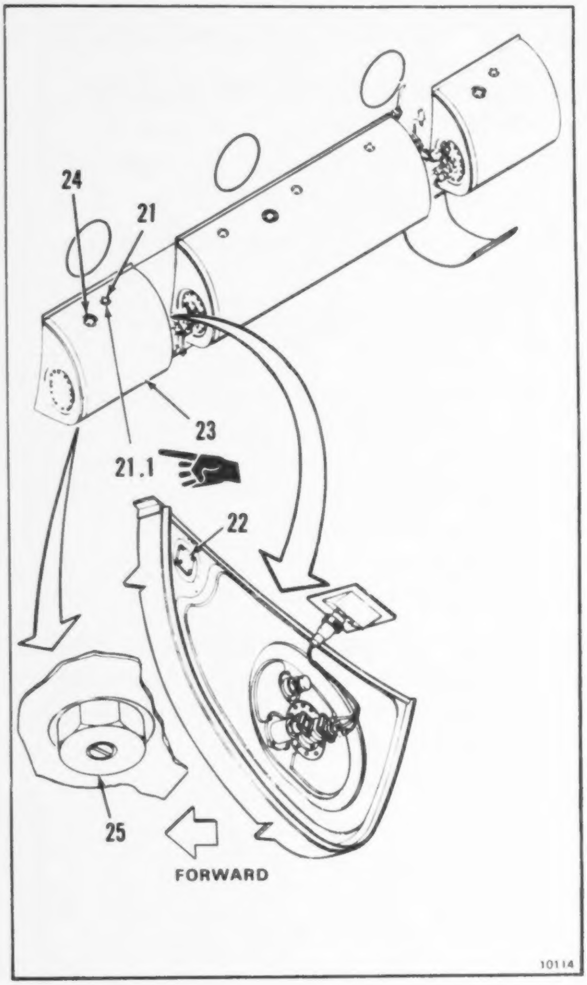
f. Check sump drain (25). Apply soap mixture as in step 8.a. Secure drain or replace packings, if necessary. If leak is found, repeat steps 6 and 7.

g. Check aft closure plate (22) at end of tank (23). Apply soap mixture as in step 8.a. Secure closure plates or replace packings, if needed. If leak is found, repeat steps 6 and 7.

h. If no leakage is found in steps 8.a. through g, go to step 16. If leaks are still found, go to step 9.

CHECK FOR LEAKS INSIDE TANK

9. Remove probe (21) and gasket (Task 8-81). **Check inside of flange (21.1).** Check underside of gasket and sealing surfaces. Install probe (Task 8-82). Repeat steps 6 and 7.



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10-27 TEST FORWARD FUEL TANK AFTER INSTALLATION (Continued) 10-27

10. **Check inside of filler adapter (24)** as follows:

    a. Remove six bolts (26) and washers (27), adapter (28), and gasket (29).

    b. Remove three screws (30). Remove packing (31).

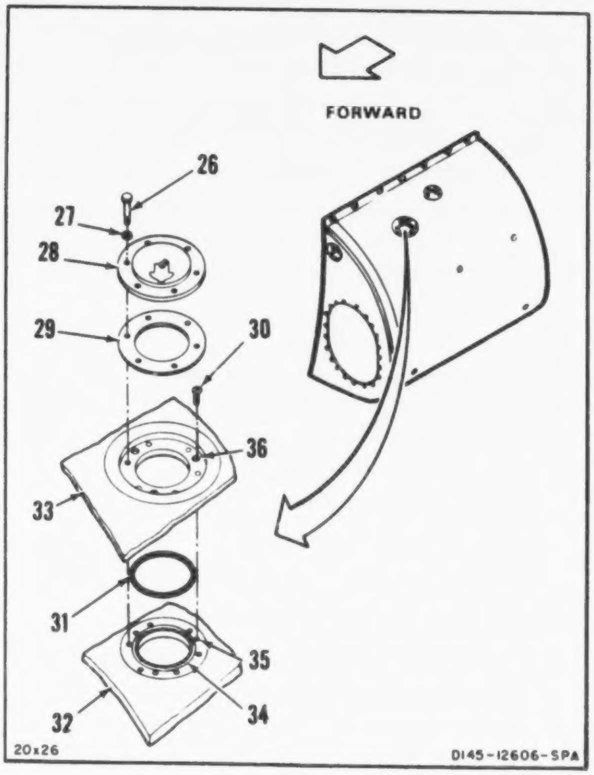
    c. Check sealing surfaces between cell (32) and pod (33).

    d. Coat packing (31) with petrolatum (E274). **Install packing** carefully in annular groove of cell flange (34). Make sure packing is not disturbed during positioning of fuel cell (32) in pod (33).

    e. Align hole (35) in cell (32) with hole (36) in pod (33). **Install three screws (30).**

    f. **Position gasket (29) and filler adapter assembly (28). Install six bolts (26)** and washers (27). **Torque bolts to 60 to 80 inch-pounds.**

    g. Repeat steps 6 and 7.



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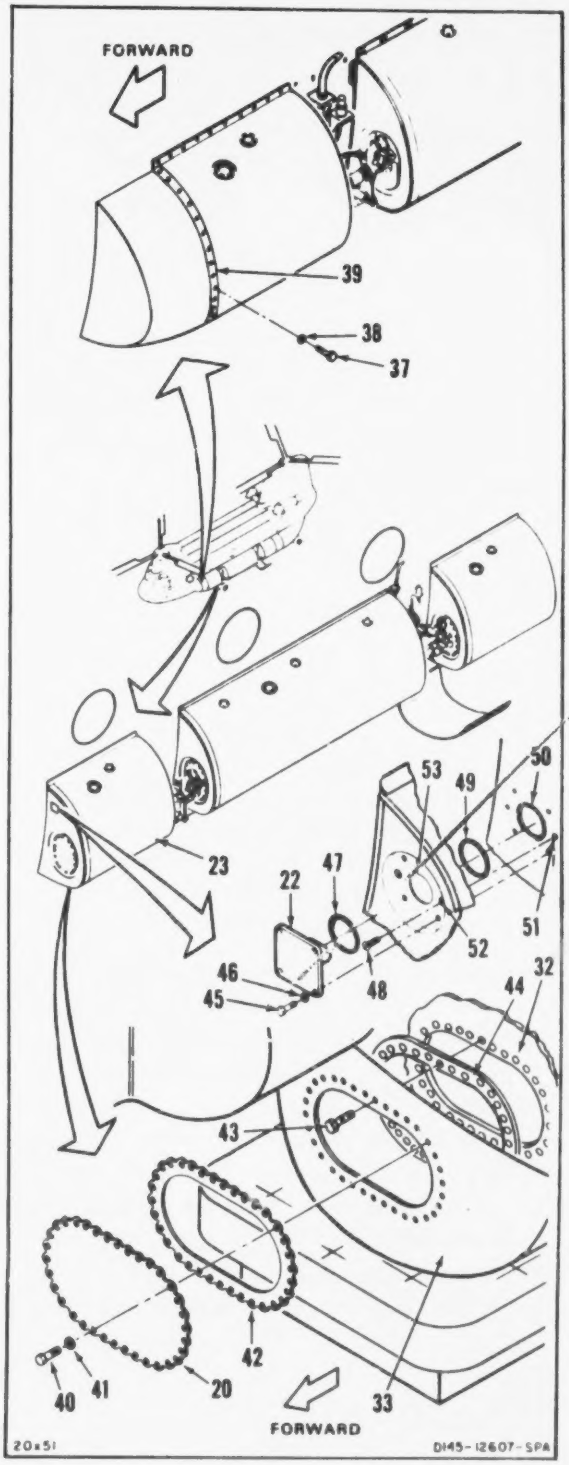
10-27 TEST FORWARD FUEL TANK AFTER INSTALLATION (Continued) 10-27

11. **Remove 54 screws (37)** and washers (38) from splice plate (39). **Remove splice plate.**
12. Lower forward tank (23) (Task 10-26).
13. **Check inside of forward access door (20)** as follows:
    a. Remove 30 bolts (40) and washers (41).
    b. Remove door (20) and gasket (42).
    c. Remove four screws (43). Remove gasket (44).
    d. Lightly smear both sides of gasket (44) with petrolatum (E274).
    e. **Position gasket (44)** between fuel pod (33) and fuel cell (32) at end of fuel pod.
    f. Align fuel pod (33), gasket (44) and fuel cell (32). **Install four screws (43).**
    g. Install access door (20) (Task 10-70).
    h. Repeat steps 6 and 7.
14. **Check inside of forward closure plate (22)** as follows:
    a. Remove four bolts (45), washers (46), and packing (47).
    b. Remove two screws (48) and packing (49).
    c. Coat packing (49) with petrolatum (E274). **Install packing** carefully in annular groove of flange (50). Make sure packing is not disturbed during positioning of fuel cell (32) in pod (33).
    d. Align holes (51) with holes (52). **Install two screws (48).**
    e. Coat packing (47) with petrolatum (E274). **Install packing** carefully in annular groove of cell flange (53). **Position closure plate (22)** on tank pod (33).
    f. **Install four bolts (45)** and washers (46). **Torque bolts to 60 to 80 inch-pounds.**
    g. Repeat steps 6 and 7.
15. Repeat steps 13 and 14 at aft end of tank (23).



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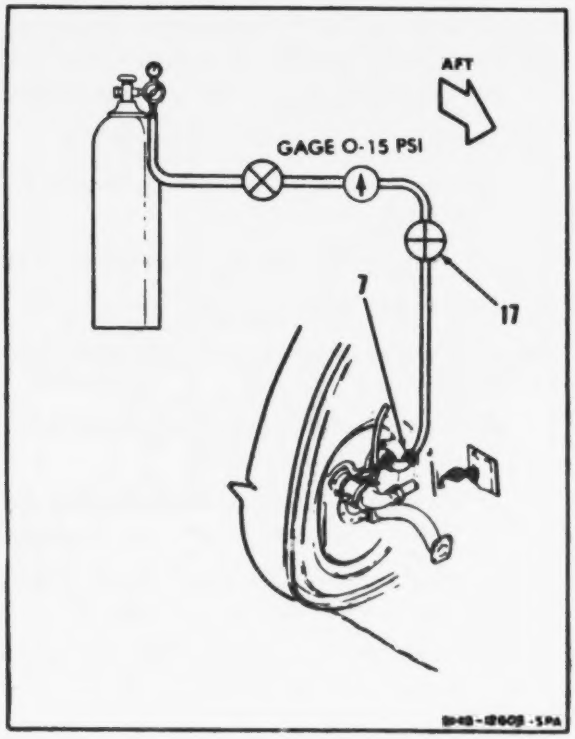
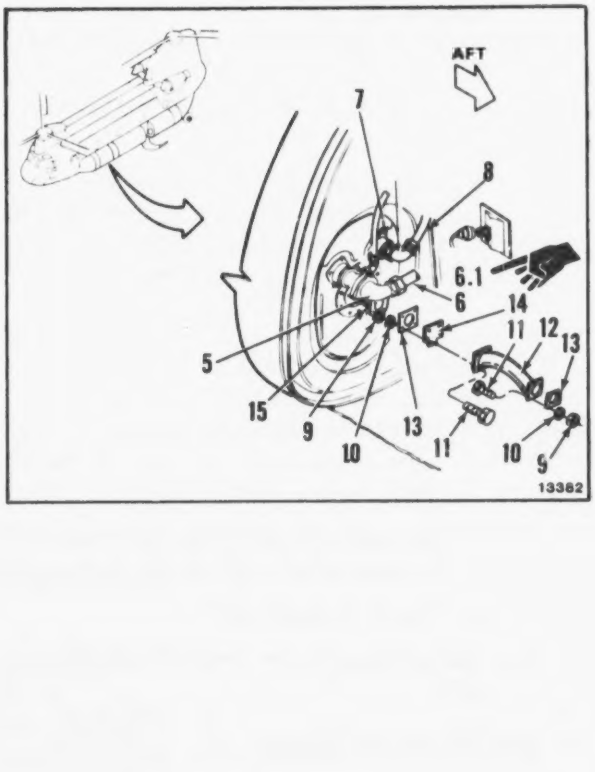
10-27 TEST FORWARD FUEL TANK AFTER INSTALLATION (Continued) 10-27

16. Open vent valve (17) and **reduce pressure to 0 psi.**
17. **Disconnect test setup** from fitting (7).





CAUTION

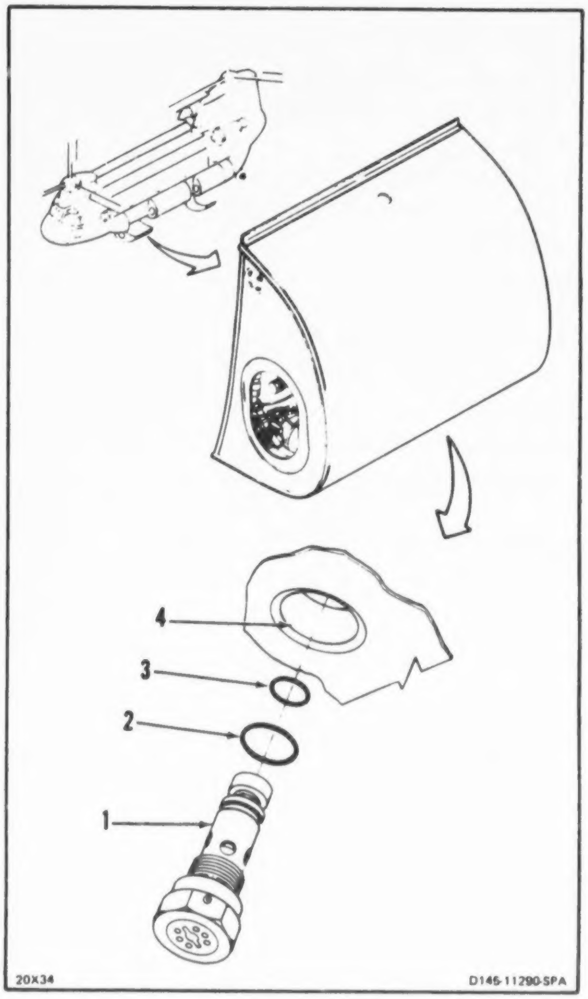
Do not allow elbow or fittings to turn when connecting hoses to aft access panel. Otherwise, fittings can fail and cause blockage.

18. Remove plug from hose (8). Hold fitting (7) with wrench and **connect hose to fitting.**
19. Remove plug from hose (6) and cap from elbow (5). Install conical seal (6.1) in hose (6) fitting. Hold elbow with wrench and **connect hose** to elbow.
20. Remove four bolts (11), washers (10), and nuts (9). **Remove closure plate (14) and gasket (13).**
21. **Install tube (12)** and two gaskets (13). Use eight bolts (11), washers (10), and nuts (9).

GO TO NEXT PAGE

10-27 TEST FORWARD FUEL TANK AFTER INSTALLATION (Continued) 10-27

22. Remove plug from port (4). Install packings (2 and 3) on drain valve (1). Install valve in port.



FOLLOW-ON MAINTENANCE:

Perform vent system pressure test (Task 10-117) and flow test (Task 10-118) on affected tank.

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

END OF TASK

10-28 REMOVE AFT FUEL TANK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Padded Support

Open End Wrench, 1 1/2-Inch

Open End Wrench, 1 7/8-Inch

Strap Wrench

Materials:

Cloths (E135)

Penetrating Lubricant (E236)

Barrier Material (E80)

Tape (E388)

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Helicopter Grounded (Task 1-29)

Fuel Tank Defueled (Task 10-34 or 10-35

Fuel Pod Vent Fairing Removed (Task 10-63)

Aft Intertank Pod Panel Removed (Task 2-185)

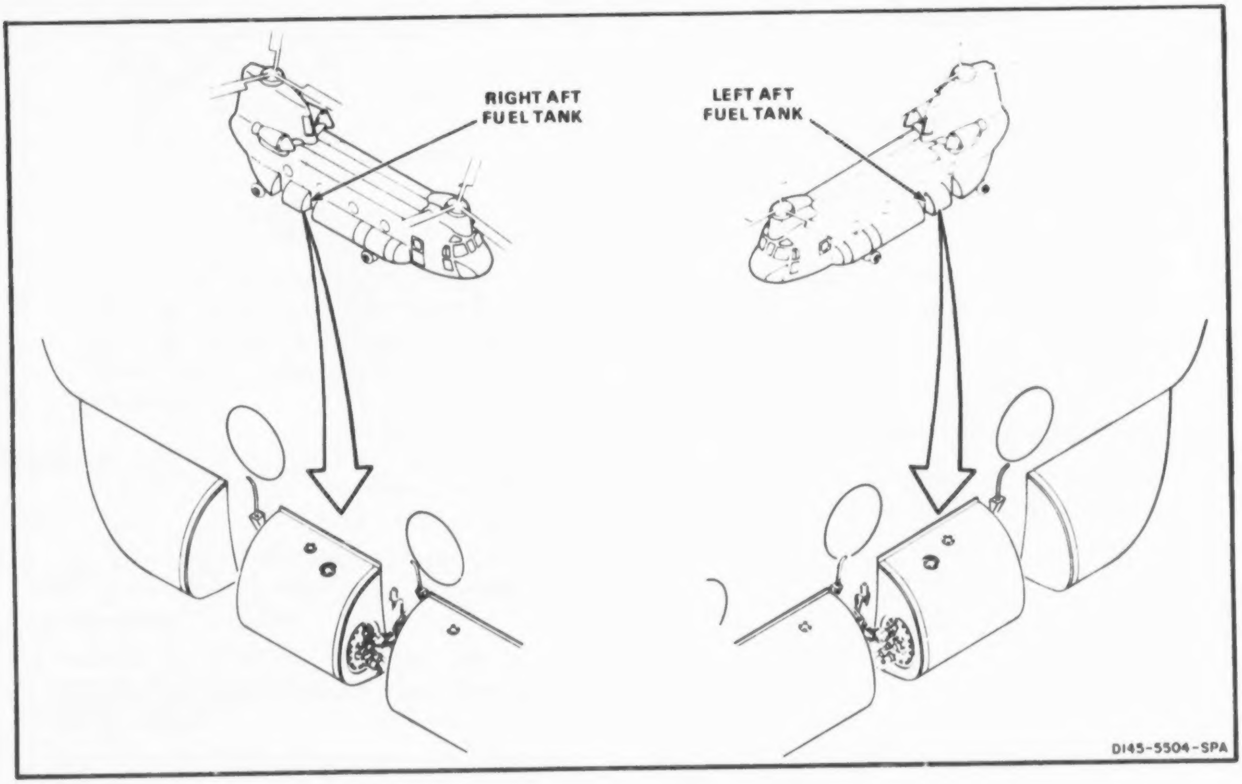
Aft Pod Panel Removed (Task 2-185)

Two Quart Grounded Container

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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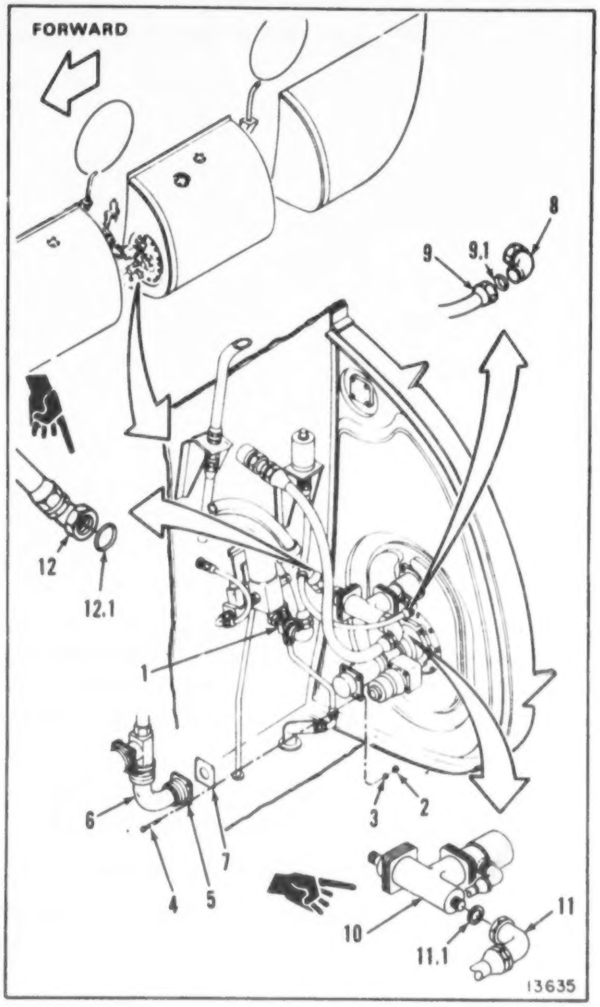
10-28 REMOVE AFT FUEL TANK (Continued) 10-28

NOTE

Procedure is same to remove aft fuel tank in No. 1 or No. 2 fuel system. Removal of No. 1 (left) tank is shown here.



LOWER FUEL TANK ON HINGES

1. Remove lockwire. **Disconnect electrical connector (1).**
2. **Remove four** nuts (2), washers (3), and **bolts (4).**
3. Slide adapter (5) forward on elbow (6). **Remove gasket (7).** Catch spilled fuel in grounded container.

CAUTION

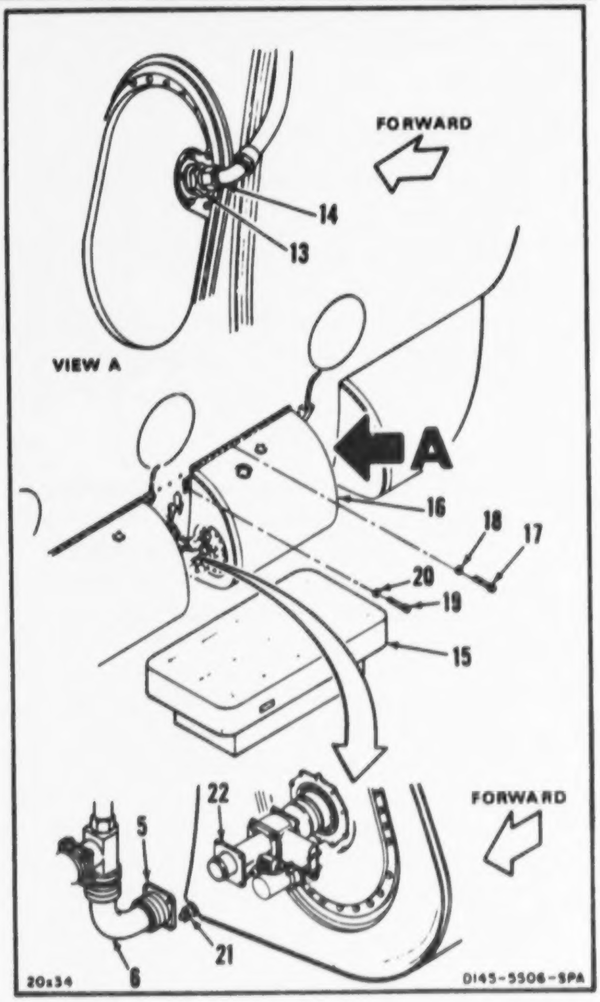
Do not allow nipple or fittings to turn when disconnecting fuel lines from forward or aft access panel of tank. Otherwise, access door fittings can fail and cause blockage.

4. Hold nipple (8) with strap wrench and **disconnect hose (9).** Remove packing (9.1) from hose fitting. Cap nipple and plug hose.
5. Hold breakaway fitting (10) with strap wrench and **disconnect hoses (11 and 12).** Remove conical seals (11.1 and 12.1) from hose fittings. Cap fitting and plug hoses.

GO TO NEXT PAGE

10-28 REMOVE AFT FUEL TANK (Continued) 10-28

6. Hold fitting (13) with wrench and **disconnect hose (14).** Cap fitting and plug hose.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D145-5506-SPA

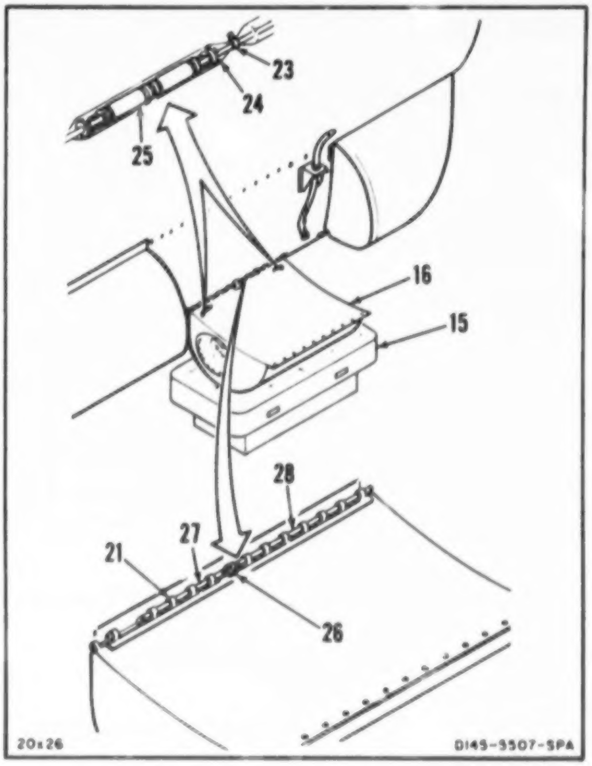
7. **Position padded support (15)** at side of tank (16). Top of support should be approximately 24-inches below bottom of fuselage.
8. With aid from helper, **support tank (16). Remove 17 bolts (17)** and washers (18).
9. **Remove four bolts (19)** and washers (20).
10. **Lower tank (16)** on hinge (21) onto padded support (15).
11. Cover holes in flange of fitting (22) and adapter (5) of elbow (6). Use barrier material (E80) and tape (E388).

GO TO NEXT PAGE

10-28 REMOVE AFT FUEL TANK (Continued) 10-28

REMOVE FUEL TANK

12. **Remove two straps (23)** securing sleeves (24).
13. **Disconnect two cable plugs (25).**
14. Spray hinge (21) with penetrating lubricant (E236).
15. Remove lockwire (26).
16. **Remove hinge pins (27 and 28).**
17. **Remove tank (16)** and support (15).
18. Clean up spilled fuel. Use cloths (E135).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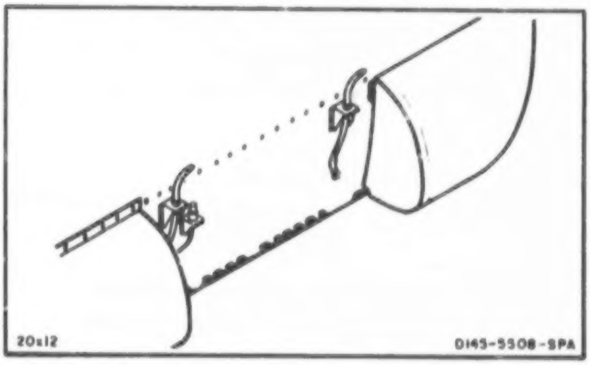
FOLLOW-ON MAINTENANCE:

None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D145-5508-SPA

END OF TASK

10-29 REMOVE AFT FUEL TANK CELL 10-29

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Aft Fuel Tank Removed (Task 10-28)
Fuel Quantity Indicating System Tank Unit Removed (Task 8-81)
Aft Fuel Tank Boost Pump Removed (Task 10-79)
Aft Tank Fuel Lines and Electrical Wiring Removed (Task 10-77)
Aft Fuel Tank Vent Assembly Removed (Task 10-65)
Fuel Level Control Valve and Mounting Bracket Removed (Task 10-59)
Tank Drain Valves Removed (Task 10-39)
Aft Fuel Tank Vent Valve Removed (Task 10-83)

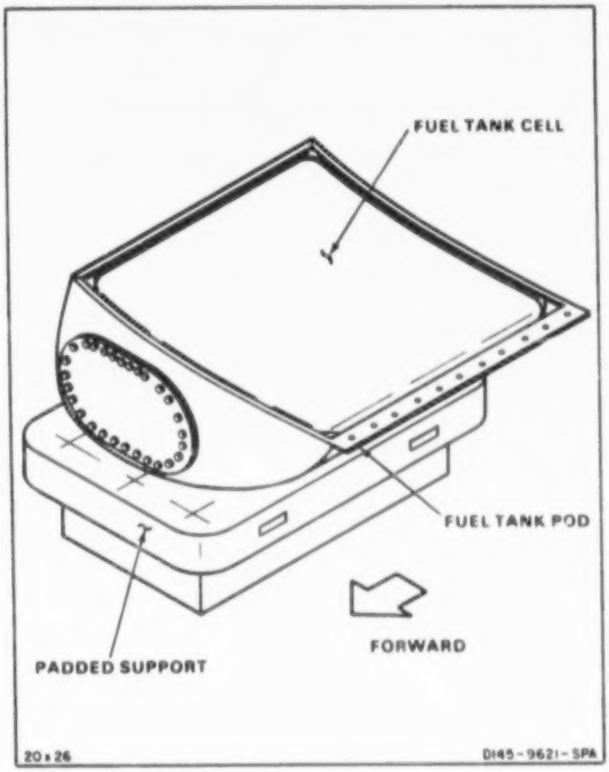
General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.



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10-29 REMOVE AFT FUEL TANK CELL (Continued) 10-29

NOTE

Procedure is same to remove cell from No. 1 or No. 2 aft fuel tank. Removal of No. 1 (left) cell is shown here.

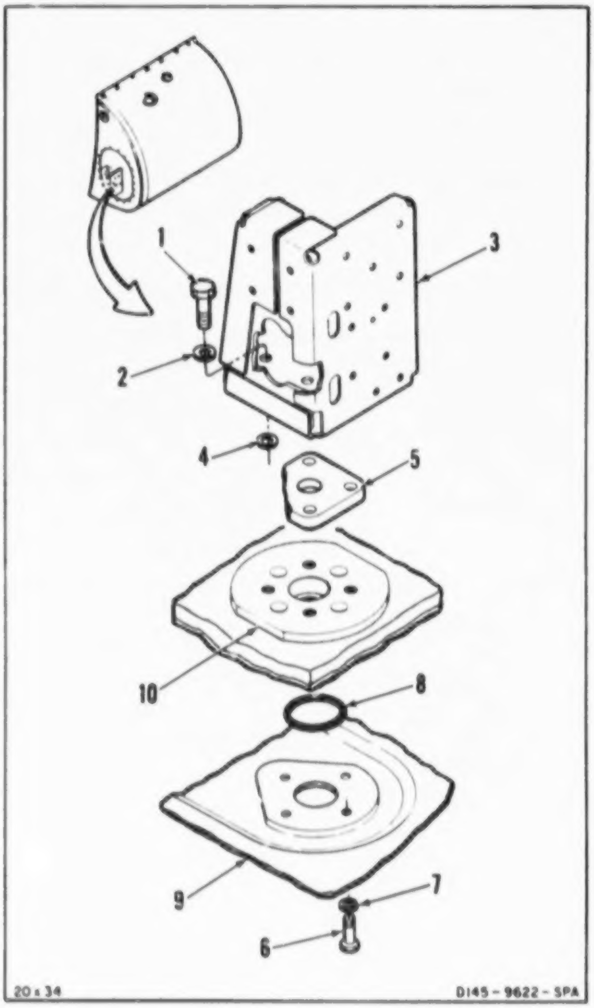
REMOVE BOOST PUMP BRACKET

1. **Remove four bolts (1)** and washers (2).
2. **Remove pump bracket (3).**

NOTE

Four different types of forward fuel cells are used on the helicopter. Each is interchangeable but requires a different washer or adapter between pump bracket and cell.

3. **Remove four washers (4) or adapter (5).**
4. **Remove four bolts (6)** and washers (7).
5. **Remove packing (8)** between fuel pod (9) and fuel cell (10).



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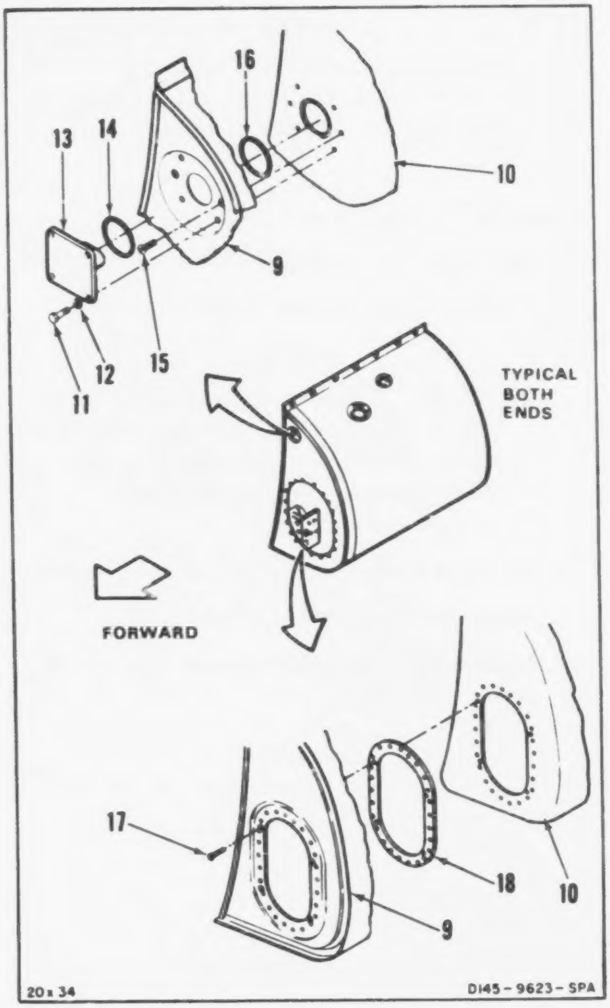
10-29 REMOVE AFT FUEL TANK CELL (Continued) 10-29

NOTE

Removal of closure plate and access hole gasket is same at both ends of tank.

6. **Remove four screws (11)** and washers (12). **Remove closure plate (13)** and packing (14).
7. Remove two screws (15) and packing (16).
8. **Remove four screws (17). Remove gasket (18)** between fuel pod (9) and fuel cell (10).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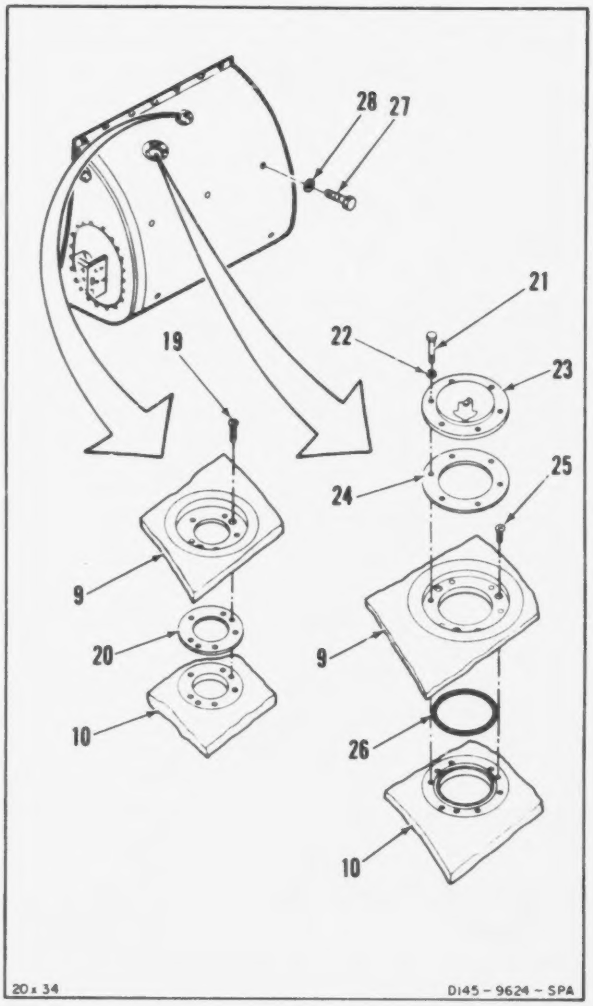
10-29 REMOVE AFT FUEL TANK CELL (Continued) 10-29

9. **Remove three screws (19).** Separate fuel cell (10) from fuel pod (9). **Remove gasket (20).**
10. **Remove six bolts (21)** and washers (22).
11. **Remove filler adapter assembly (23) and gasket (24).**
12. **Remove three screws (25).** Separate fuel cell (10) from fuel pod (9). Remove packing (26).
13. Remove three bolts (27) and washers (28).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D145 - 9624 - SPA

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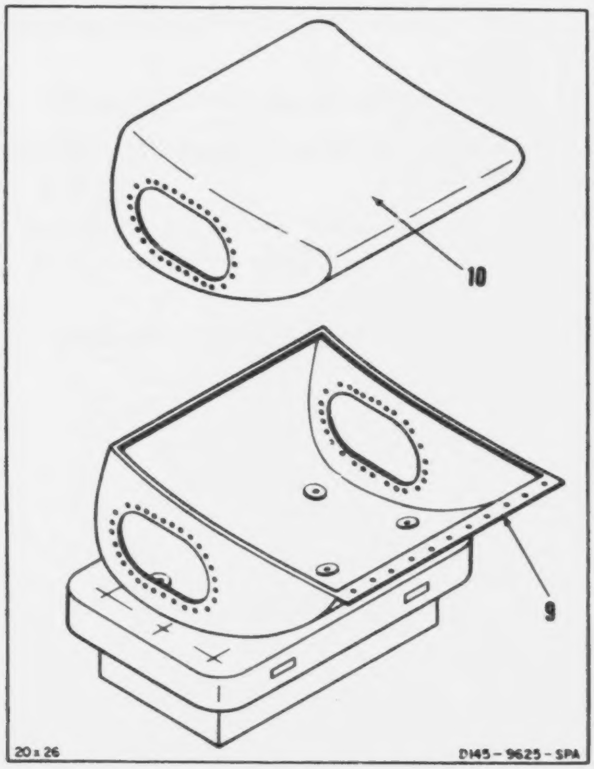
10-29 REMOVE AFT FUEL TANK CELL (Continued) 10-29

14. **Carefully remove fuel cell (10) from pod structure (9).**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9
20 x 26
DH5-9625-SPA

FOLLOW-ON MAINTENANCE:
None

END OF TASK

10-30 INSTALL AFT FUEL TANK CELL 10-30

INITIAL SETUP

Applicable Configurations:
All

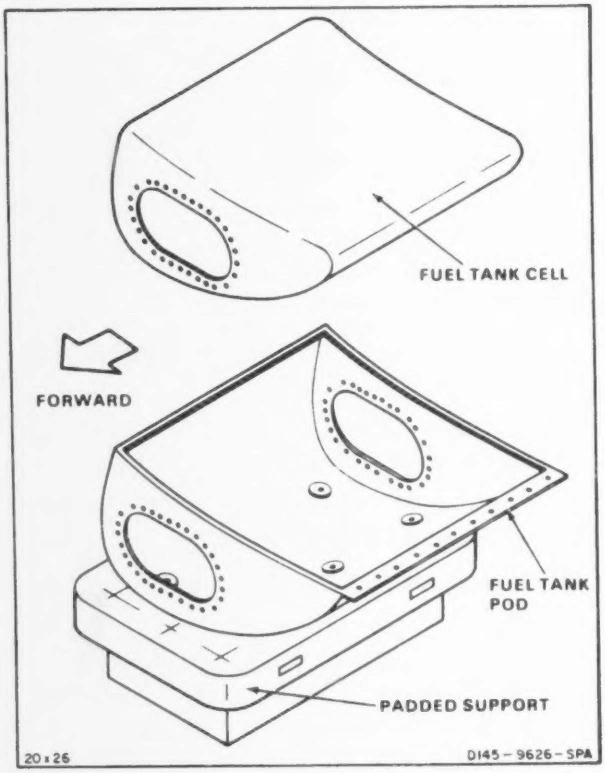
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 30 to 150 Inch-Pounds

Materials:
Petrolatum (E274)

Parts:
Packings
Gaskets

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P
Task 10-40



General Safety Instructions:

CAUTION

Do not puncture or scratch lining of fuel cell. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel cell and flush fuel system.

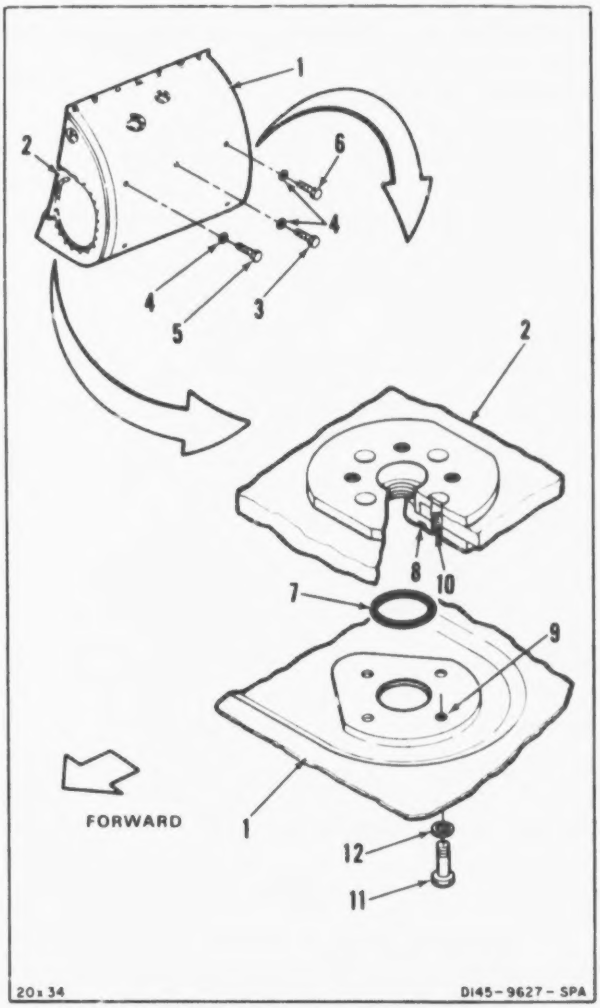
GO TO NEXT PAGE

10-30 INSTALL AFT FUEL TANK CELL (Continued) 10-30

NOTE

Procedure is same to install cell in No. 1 or No. 2 fuel tank pod. Installation of No. 1 (left) cell is shown here.

1. Make sure interior of fuel tank pod (1) is free of foreign material.
2. **Position fuel cell (2) carefully in tank pod (1).** Insert lower portion of cell in pod. Depress top portion of cell. Position it in and along top portion of tank pod.
3. **Form cell (2) to fit contour of pod structure (1).**
4. **Install bolt (3)** and washer (4). **Do not tighten bolt** at this time.
5. **Install bolts (5 and 6)** and washers (4). **Do not tighten bolts at this time.**
6. **Tighten three bolts (3, 5 and 6)** in this order.
7. Coat two packings (7) with petrolatum (E274). Install packings carefully in annular groove of flange (8) at each end of tank. Make sure that packings are not disturbed during positioning of fuel cell (2) in pod (1).
8. Align holes (9) in pod (1) with holes (10) in cell (2). Install eight bolts (11) and washers (12). **Torque bolts to 60 to 80 inch-pounds.**



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10-30 INSTALL AFT FUEL TANK CELL (Continued) 10-30

9. Coat two packings (13) with petrolatum (E274). **Install packings** carefully in annular groove of flange (14) at each end of cell (2). Make sure packings are not disturbed during positioning of fuel cell in pod (1).

10. Align holes (15) with holes (16). **Install screws (17).**

11. Coat two packings (18) with petrolatum (E274). **Install packings** carefully in annular groove of cell flange (19). **Position closure plate (20)** at each end of tank pod (1).

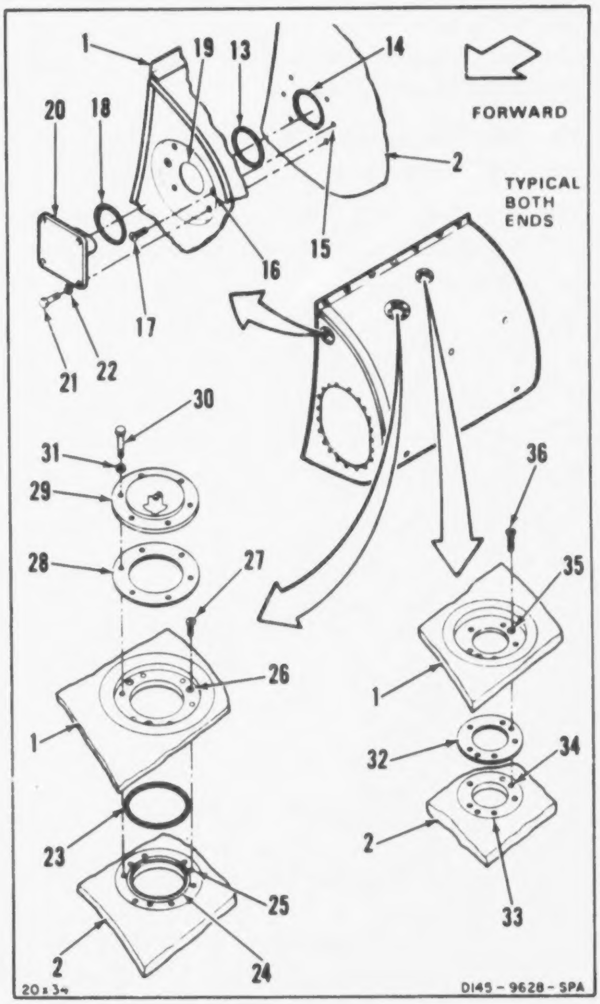
12. **Install eight bolts (21)** and washers (22). **Torque bolts to 60 to 80 inch-pounds.**

13. Coat packing (23) with petrolatum (E274). **Install packing** carefully in annular groove of cell flange (24). Make sure packing is not disturbed during positioning of fuel cell (2) in pod (1).

14. Align hole (25) in cell (2) with hole (26) in pod (1). **Install three screws (27).**

15. **Position gasket (28) and filler adapter assembly (29). Install six bolts (30)** and washers (31). **Torque bolts to 60 to 80 inch-pounds.**

16. Position gasket (32) on flange (33) of fuel cell (2). Align holes (34) in fuel cell with holes (35) in pod (1). **Install two screws (36).**



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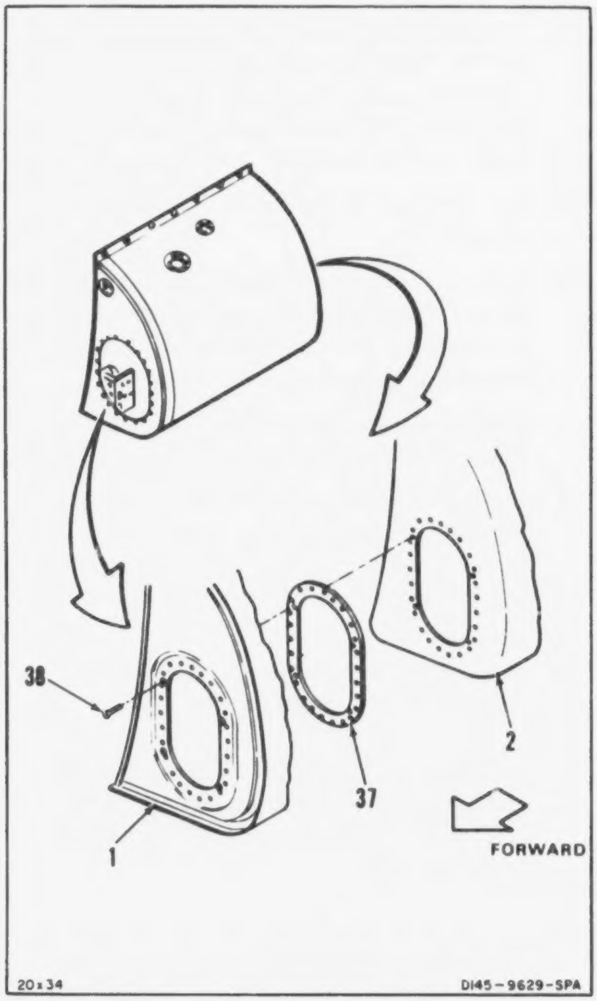
10-30 INSTALL AFT FUEL TANK CELL (Continued) 10-30

17. Lightly smear both sides of gasket (37) with petrolatum (E274).
18. **Position gaskets (37)** between fuel pod (1) and fuel cell (2) at both ends of fuel pod.
19. Align fuel pod (1), gaskets (37) and fuel cell (2). **Install four screws (38)** at each end of tank pod.


38
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DI45-9629-SPA

GO TO NEXT PAGE

10-30 INSTALL AFT FUEL TANK CELL (Continued) 10-30

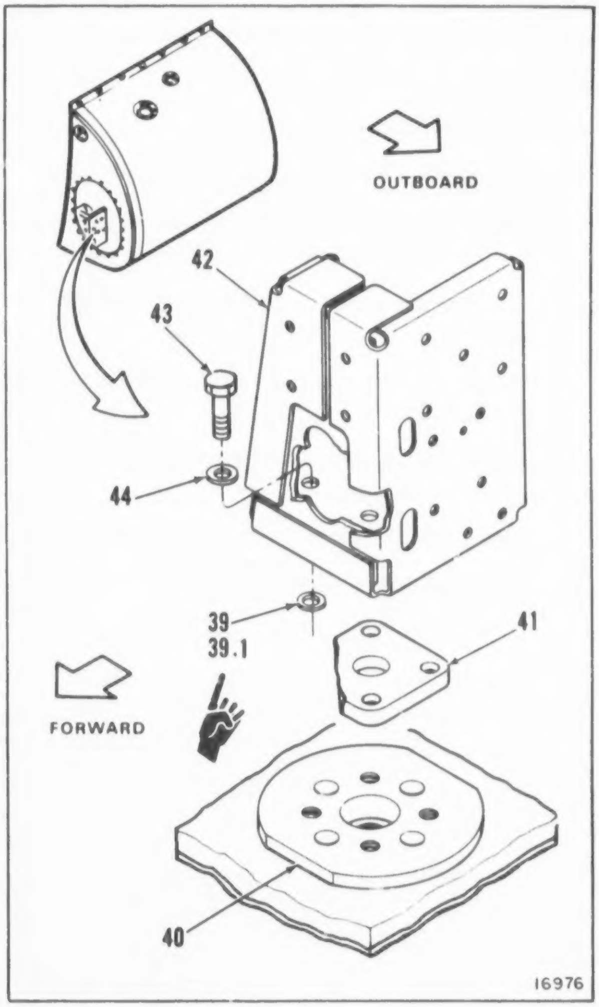
20. **Install fuel tank drain valves** (Task 10-40).

INSTALL BOOST PUMP BRACKET

NOTE

Four different types of forward fuel cells are used on the helicopter. Each is interchangeable but requires a different washer or adapter between pump bracket and cell.

21. - **For fuel cell 145P4056-1 position four washers (39) on cell flange (40).**
    - **For fuel cells 145P4056-2 or 414PS401-7 or 414PS401-8 install four bushings (39.1) on adapter (41) on cell flange (40).**
22. **Position pump bracket (42).**
23. **Install four bolts (43)** and washers (44).



10-30 INSTALL AFT FUEL TANK CELL (Continued) 10-30

INSPECT

FOLLOW-ON MAINTENANCE:

Install aft fuel tank vent valve (Task 10-84).

Install fuel level control valve and mounting bracket (Task 10-60).

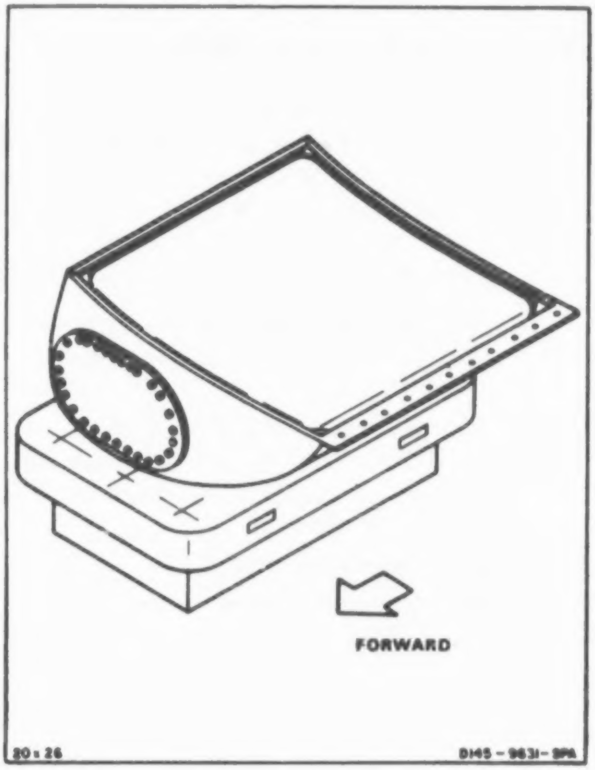
Install auxiliary tank vent assembly (Task 10-66).

Install aft tank fuel lines and electrical wiring (Task 10-78).

Install fuel quantity indicating system tank unit (Task 8-82).

Install aft tank boost pump (Task 10-80).

Install aft fuel tank (Task 10-31).



END OF TASK

10-31 INSTALL AFT FUEL TANK 10-31

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Wrench, Open End, 1-1/2 Inch
Wrench, Open End, 1-7/8 Inch
Strap Wrench

Materials:

Cloths (E135)
Dry Cleaning Solvent (E162)
Gloves (E186)
Tiedown Straps (E375)
Lockwire (E232)
Lockwire (E231)
Parting Agent (E307)
Sealant (E336)
Tongue Depressors (E424)

Parts:

Gaskets

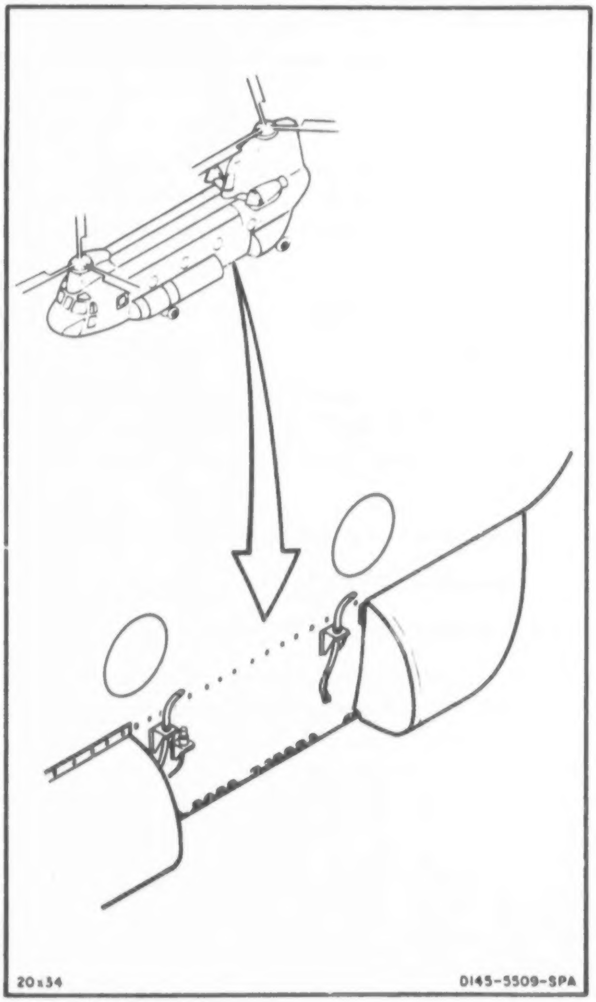
Personnel Required:

Medium Helicopter Repairer (2)
Inspector

References:

TM 55-1520-240-23P

General Safety Instructions:



WARNING

All regulations and instructions for handling fuels shall be strictly observed.

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Parting agent (E307) can form toxic vapors if exposed to flame. Use in well-ventilated area, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

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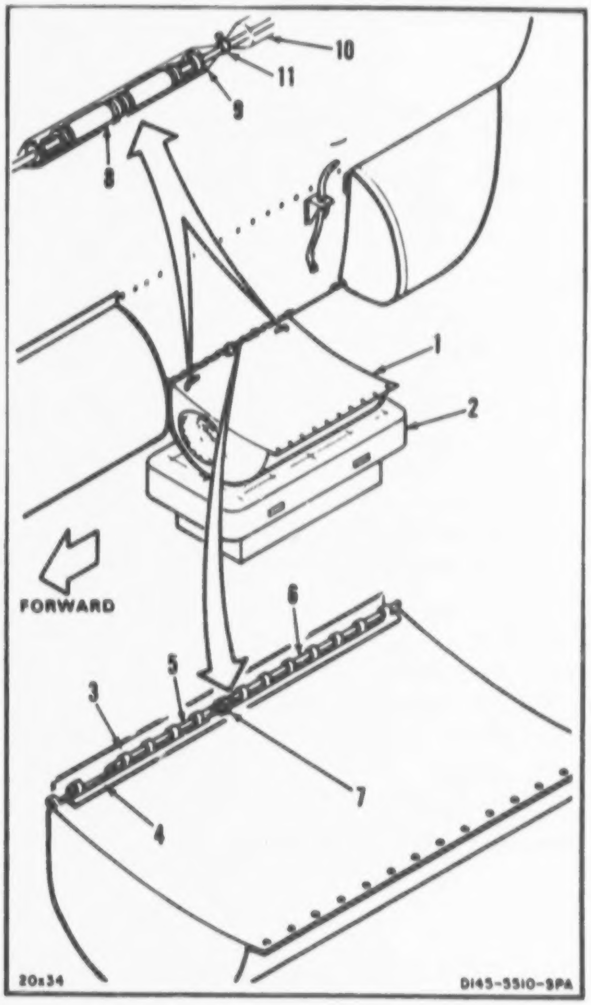
10-31 INSTALL AFT FUEL TANK (Continued) 10-31



NOTE

Procedure is same to install aft fuel tank in No. 1 or No. 2 fuel system. Installation of No. 1 (left) tank is shown here.

INSTALL FUEL TANK ON HINGES

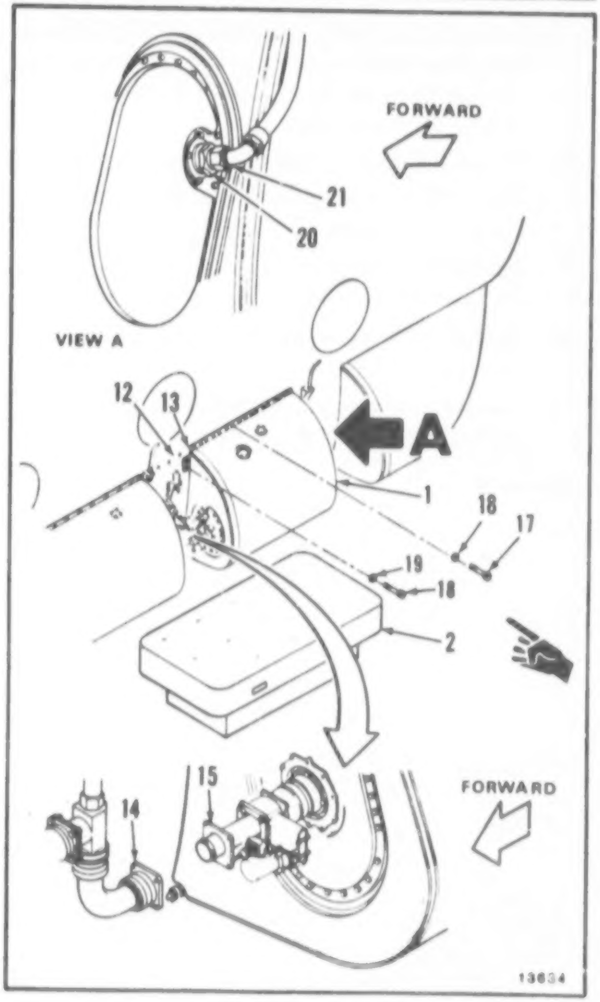
1. With aid from helper, **position tank (1)** on padded support (2) at side of helicopter. Align fuselage hinge half (3) with tank hinge half (4).
2. **Install hinge pin (5 and 6).**
3. **Install lockwire (7).**
4. **Connect two cable plugs (8).**
5. Slide sleeve (9) over plugs (8) and tank sleeve (10). Secure sleeve with tiedown straps (E375) (11).

GO TO NEXT PAGE

10-31 INSTALL AFT FUEL TANK (Continued)

RAISE AND INSTALL FUEL TANK

6. Clean beam (12) and top edge (13) of tank (1). Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).
7. **Apply thin coat of parting agent (E307) along beam (12).** Use tongue depressor (E424). Wear gloves (E186).
8. Apply coat of sealant (E336) on top inner edge of tank (13). Use tongue depressor (E424). Wear gloves (E186).
9. Remove barrier material and tape from flange of elbow (14) and flange of fitting (15). Clean faces of flanges. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).
10. With aid from helper, **raise tank (1)** to installed position and support tank.
11. **Install 17 bolts (17)** and washers (18). Apply sealant (E336) over head of bolts.
12. Apply a bead of parting agent (E307) and then sealant (E336) to top outside edge of tank (1) where tank meets skin of aircraft.
13. Remove padded support (2).
14. **Install four bolts (18)** and washers (19).



CAUTION

Do not allow fittings to turn when connecting fuel hoses to access door. Otherwise, fittings can fail and cause blockage.

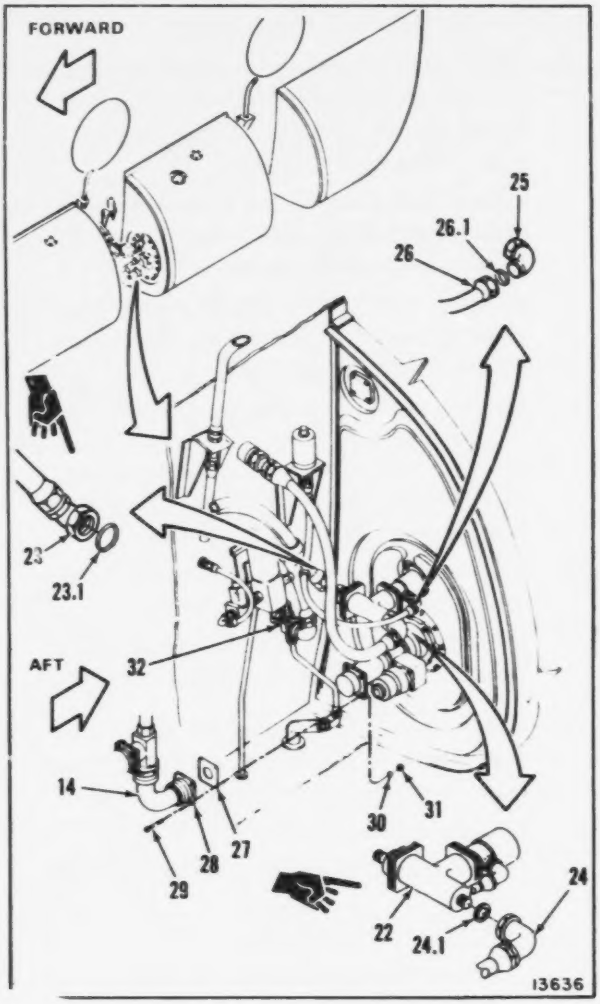
15. Remove cap from fitting (20) and plug from hose (21). **Connect hose.**

GO TO NEXT PAGE

10-31 INSTALL AFT FUEL TANK (Continued) 10-31

16. Remove caps from breakaway fitting (22) and plugs from hoses (23 and 24). Install conical seals (23.1 and 24.1) in hose fittings. **Connect hoses.**
17. Remove cap from nipple (25) and plug from hose (26). Install conical seal (26.1) from hose fitting. **Connect hose.**
18. **Position gasket (27).** Slide adapter (28) aft from elbow (14).
19. **Install four bolts (29),** washers (30), and nuts (31).
20. **Connect electrical connector (32). Install lockwire (E231).**

INSPECT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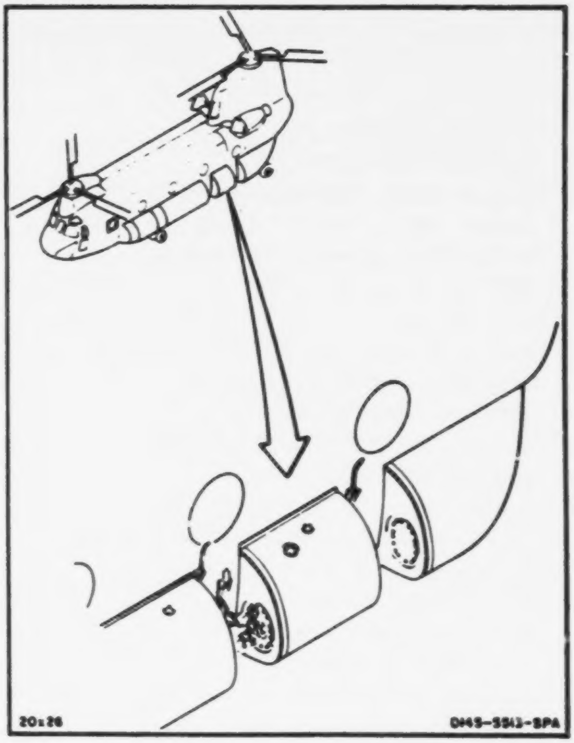
10-31 INSTALL AFT FUEL TANK (Continued) 10-31



FOLLOW-ON MAINTENANCE:

Perform vent system pressure test (Task 10-117) and flow test (Task 10-118) on affected tank.

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-2).

Install aft intertank pod panel (Task 2-188).

Install aft pod panel (Task 2-188).

Install fuel pod vent fairing (Task 10-64).

END OF TASK

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10-32 TEST AFT FUEL TANK AFTER INSTALLATION 10-32

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Nitrogen supply with regulator (preferred) or low pressure air source (0-12 psig dry or filtered)

Air regulator assembly (P/N 538A), NSN 4940-00-200-2096

Hose, air, general purpose (P/N ZZ-H-521), NSN 4720-00-289-3429

Vent Valve (P/N MS 35782-2), NSN 4820-00-720-4488

Shutoff Valve (P/N 13219E 9499), NSN 4820-01-015-6690

Low Pressure Air Gage, 0-15 psig (P/N 1009AL015), NSN 6685-00-729-4434

Stopwatch/timer

Plug, MITPK, 114200

Hose clamps (P/N WW-C-440), NSN 4730-00-965-7503

Tee, pipe (P/N AN 917-2) NSN 4730-00-278-3990

Adapter, straight, pipe to hose (P/N AN 840-6) NSN 4730-00-287-1876

Torque Wrench, 30 to 150 inch-pounds

Materials:

Soap (E353)

Brush (E85)

Petrolatum (E274)

Parts:

Packings

Gaskets

Personnel Required:

Medium Helicopter Repairer

Inspector

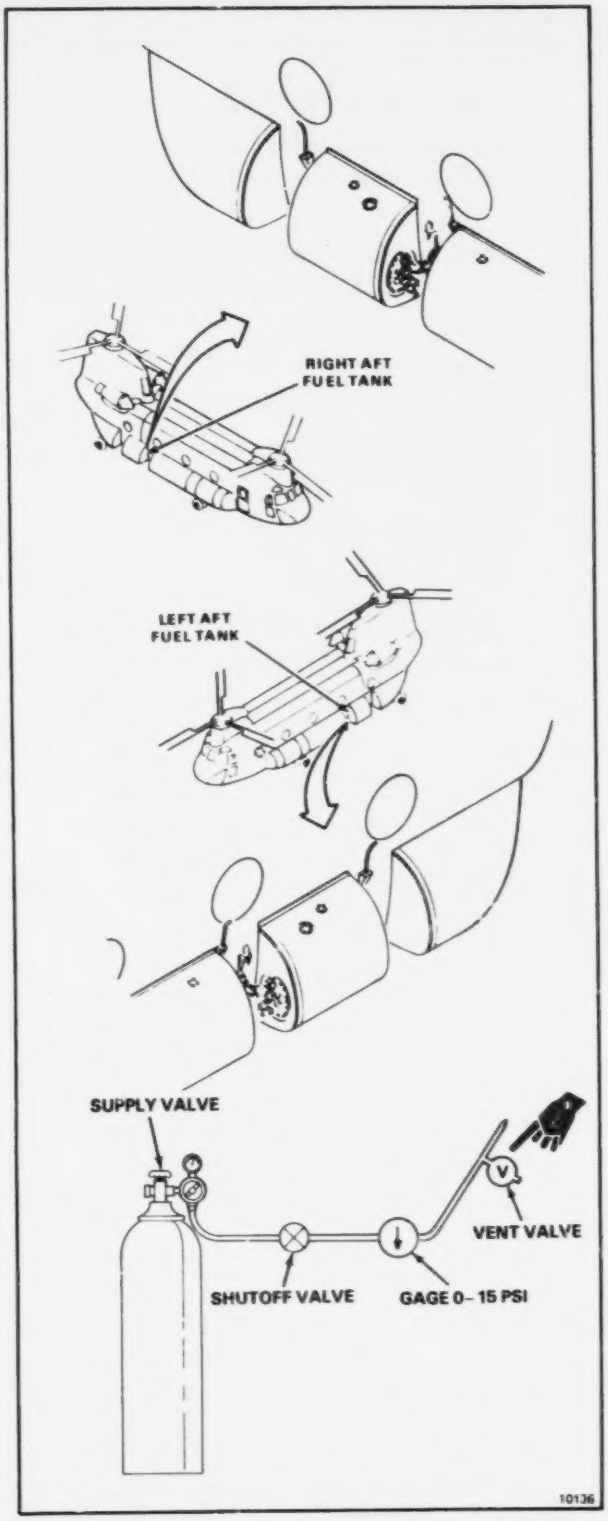
References:

Task 8-81

Task 8-82

Task 10-39

Task 10-40



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10-32 TEST AFT FUEL TANK AFTER INSTALLATION (Continued) 10-32

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Fuel Tank Defueled on Affected Side (Task 10-34 or 10-35)
Aft Intertank Pod Panel Lowered (Task 2-185)
Aft Pod Panel Removed (Task 2-185)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

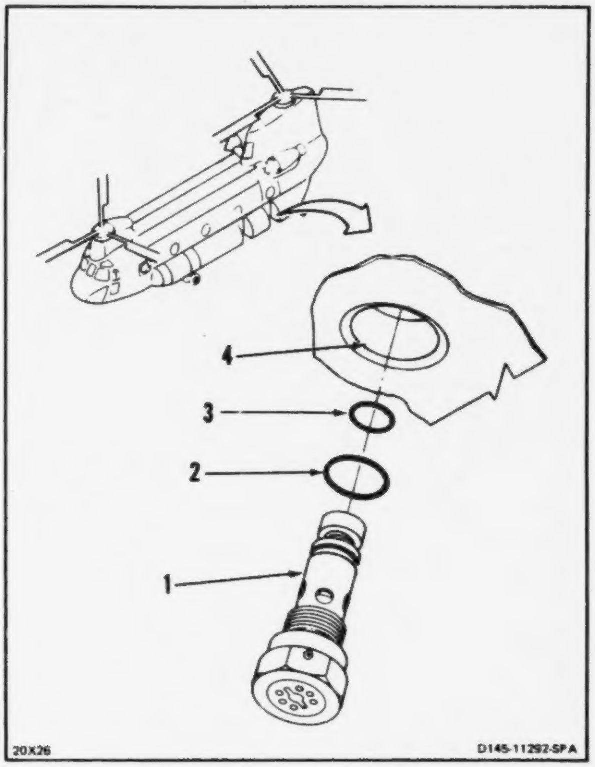
GO TO NEXT PAGE

10-32 TEST AFT FUEL TANK AFTER INSTALLATION (Continued) 10-32

NOTE

Procedure is same to test No. 1 or No.2 fuel system aft fuel tank. No. 1 aft tank is shown here.

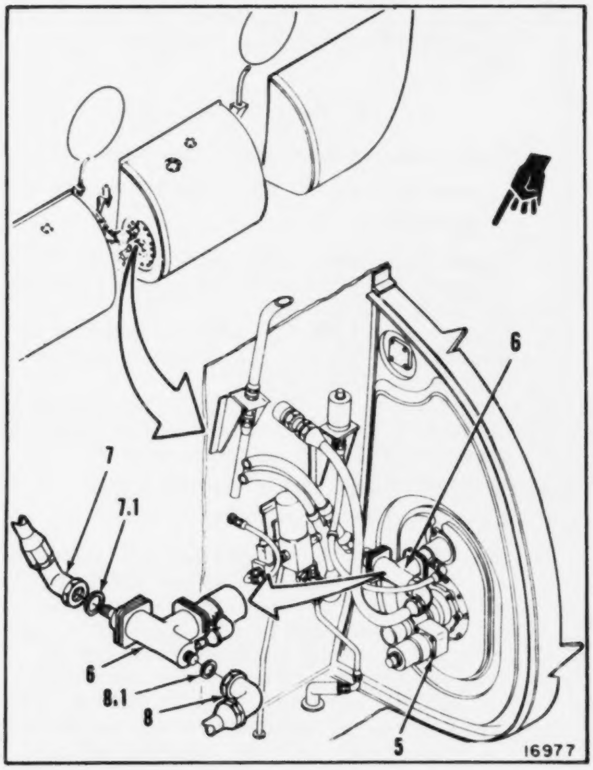
1. Remove aft drain valve (1) and two packings (2 and 3). Install plug in port (4).



CAUTION

Do not allow nipple or fittings to turn when disconnecting fuel lines from forward or aft access panel of tank. Otherwise, access panel fittings can fail and cause fuel blockage.

2. Check that gate valve (5) is closed.
3. Hold breakaway fitting (6) with a strap wrench and **disconnect hoses (7 and 8).** Remove conical seals (7.1 and 8.1). Catch spilled fuel. Use grounded container. Cap fitting and plug hoses.



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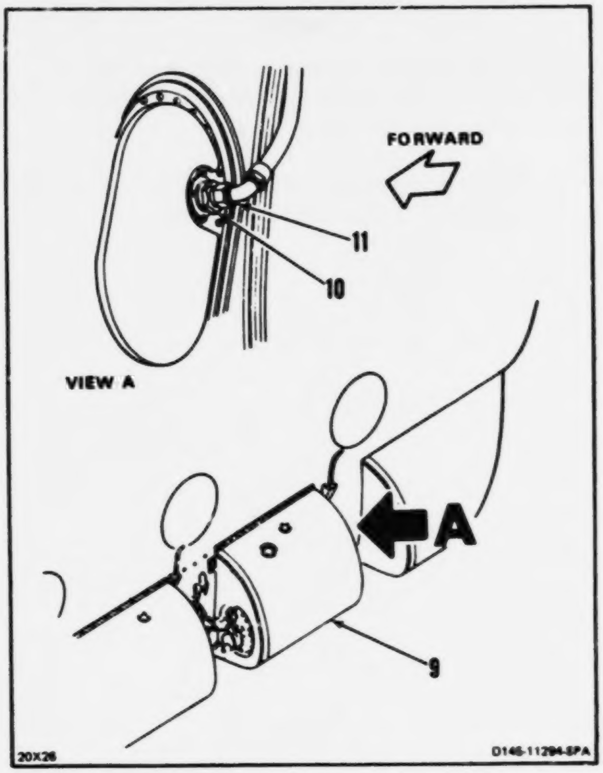
10-32 TEST AFT FUEL TANK AFTER INSTALLATION (Continued) 10-32

4. At aft end of tank (9), hold fitting (10) with wrench and **disconnect hose (11).** Plug hose.



5. Make sure valve (12) is open and valve (13) is closed. **Connect test setup** to fitting (10).

CAUTION

Structural damage to aircraft may occur if more than 4.0 psi is applied.

5.1 Open nitrogen or air supply source (13.1) and regulate pressure to **3.0 psi.** Do not apply more than **4.0 psi.**

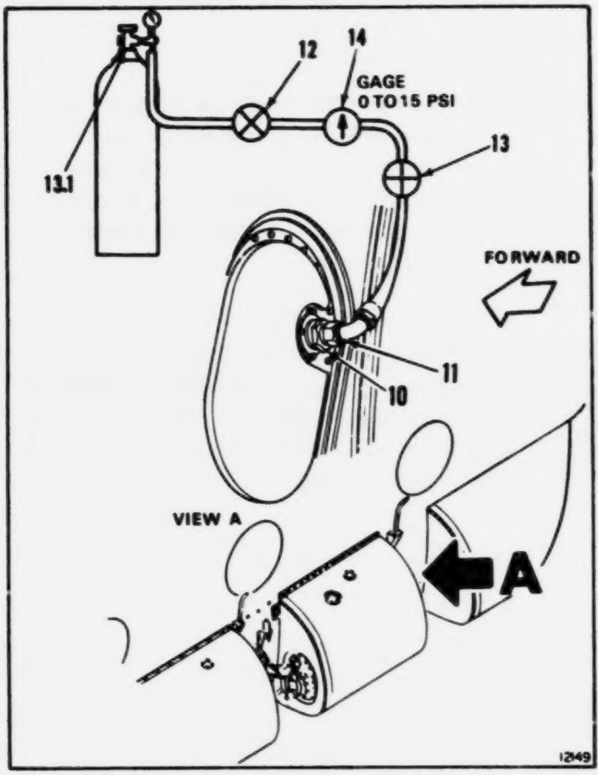
6. **Open valve (12) and allow pressure to stabilize at 3.0 psi.** Close valve. Do not apply more than 4.0 psi.

7. Wait 15 minutes. Check gage (14). If gage indicates 3.0 psi, go to step 14. If gage indicates less than 3.0 psi, go to step 8.

CHECK FOR LEAKS OUTSIDE OF TANK

8. **Check for leaks** as follows:

   a. Check test setup connections upstream and downstream of valves (12 and 13), and gage. Use mixture of soap (E353) and water, and brush (E85). Allow system to remain under pressure for 15 minutes. If bubbles grow in size, connection is leaking. Tighten leaking connections or replace packings as needed. Also check all joints, seams, and cast components. If leak is found, repeat steps 6 and 7.



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10-32 TEST AFT FUEL TANK AFTER INSTALLATION (Continued) 10-32

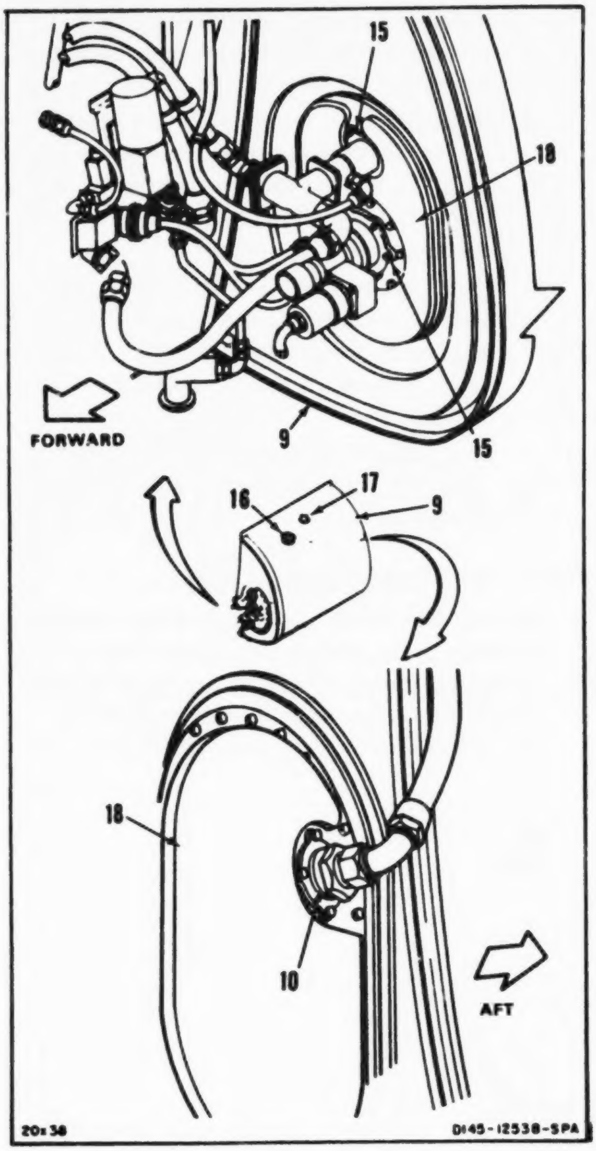
b. Check two fittings (15) on forward end of tank (9). Apply soap mixture as in step 8. a. Secure fittings or replace packings as needed. If leak is found, repeat steps 6 and 7.

c. Check filler adapter (16). Apply soap mixture as in step 8.a. Secure filler adapter or replace packings, if needed. If leak is found, repeat steps 6 and 7.

d. Check flange (17). Apply soap mixture as in step 8.a. Secure flange or replace packing, if needed. If leak is found, repeat steps 6 and 7.

e. Check aft fitting (10). Apply soap mixture as in step 8.a. Secure fitting or replace packing, if needed. If leak is found, repeat steps 6 and 7.

f. Check two access doors (18). Apply soap mixture as in step 8.a. Secure access doors or replace gasket, if needed. If leak is found, repeat steps 6 and 7.



GO TO NEXT PAGE

10-32 TEST AFT FUEL TANK AFTER INSTALLATION (Continued) 10-32

g. Check closure plate (19) at each end of tank (9). Apply soap mixture as in step 8.a. Secure plates or replace packings, if needed. If leak is found, repeat steps 6 and 7.

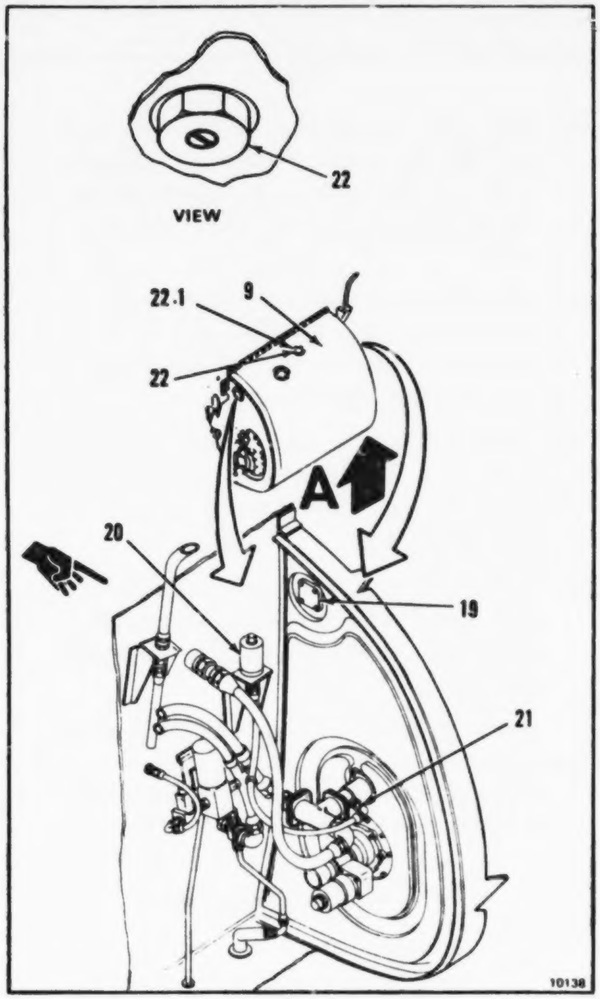
h. Check pressure switch (20) and fittings on hose (21). Apply soap mixture as in step 8.a. Secure valve or fittings, or replace packings, if needed. If leak is found, repeat steps 6 and 7.

i. Check forward sump drain (22). Apply soap and water mixture as in step 8.a. Secure drain or replace packings, if needed. If leak is found, repeat steps 6 and 7.

j. If no leaks are found in steps 8a through i, go to step 14. If leaks are found, go to step 9.

CHECK FOR LEAKS INSIDE TANK

9. Remove probe (22) and gasket (Task 8-81). **Check inside of flange (22.1).** Remove probe and gasket. Check underside of gasket and sealing surfaces. Install probe (Task 8-82). If leak is found, repeat steps 6 and 7.



10-32 TEST AFT FUEL TANK AFTER INSTALLATION (Continued) 10-32

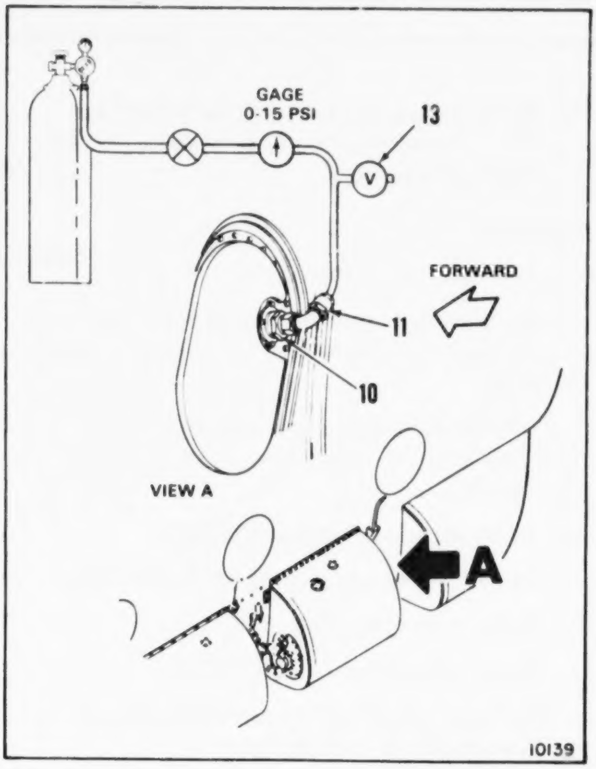
14. Open vent valve (13) and **reduce pressure to 0 psi.** close valve.

15. **Disconnect test setup** from fitting (10).

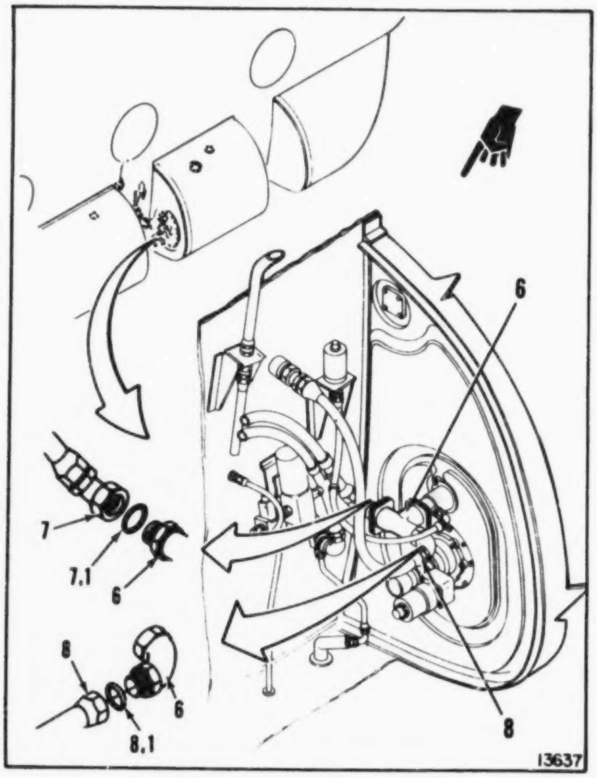
CAUTION

Do not allow nipple or fittings to turn when disconnecting fuel lines from forward or aft access panel of tank. Otherwise, access panel fittings can fail and cause fuel blockage.

16. Remove plug from hose (11). Hold fitting (10) with wrench and **connect hose.**



17. Remove caps from breakaway fitting (6) and plugs from hoses (7 and 8). Install conical seals (7.1 and 8.1) in hose fittings. **Connect hoses.**



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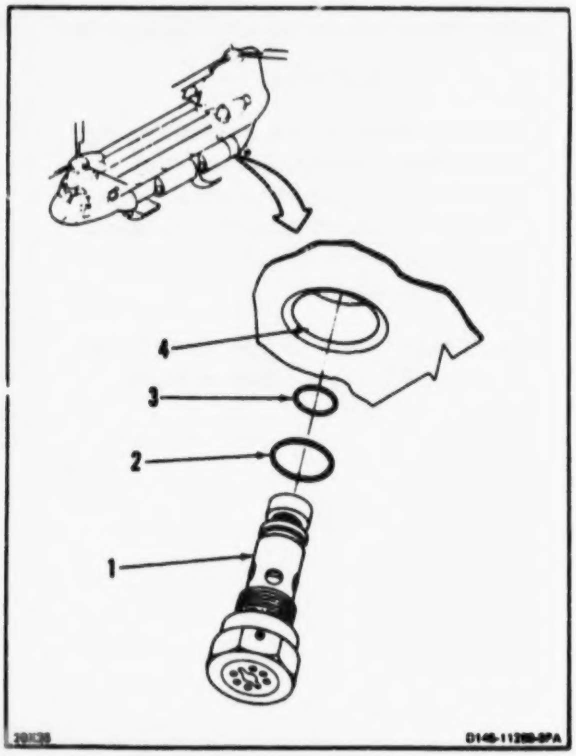
10-32 TEST AFT FUEL TANK AFTER INSTALLATION (Continued) 10-32

18. Remove plug from port (4). Install two serviceable packings (2 and 3) on valve (1). **Install valve in port.**



INSPECT

FOLLOW-ON MAINTENANCE:

Perform vent system pressure test (Task 10-117) and flow test (Task 10-118) on affected tank.

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Install aft pod panel (Task 2-188).

Raise aft intertank pod panel (Task 2-188).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

END OF TASK

SECTION III

FUEL SYSTEMS

10-33 ISOLATING CONTAMINATION 10-33

INITIAL SETUP

Applicable Configurations:
All

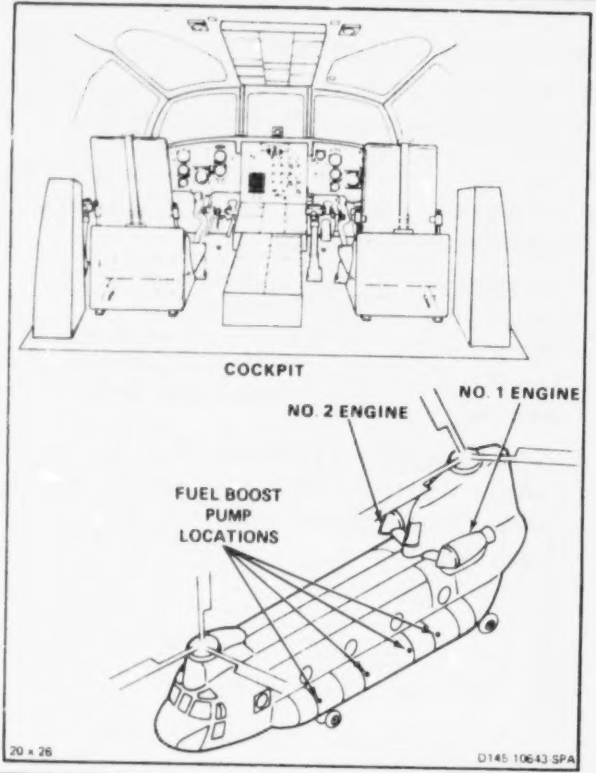
Tools:
As Required

Materials:
As Required

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-2840-254-23
Task 1-37
Task 4-17
Task 4-18
Task 10-69
Task 10-51
Task 10-53
Task 10-79
Task 10-70
Task 10-52
Task 10-54
Task 10-80
Task 10-36
Task 10-37

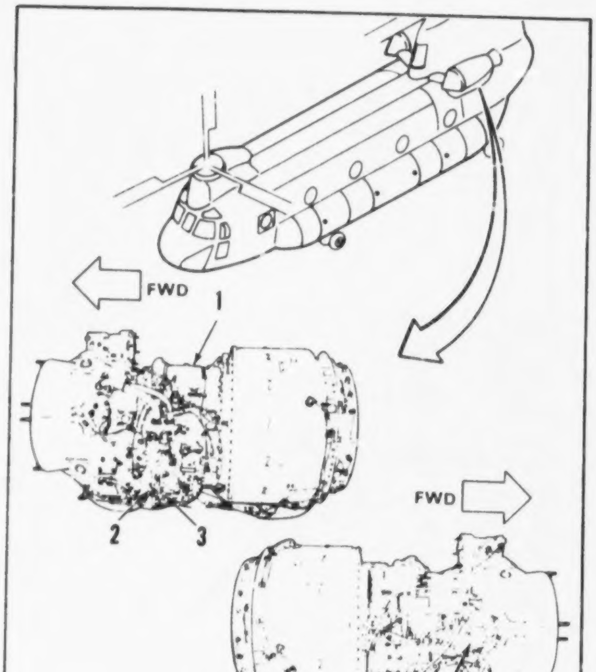
Equipment Condition:
Electrical Power On
Battery Connected (Task 1-39)
Helicopter Grounded (Task 1-29)
Engine Work Platform Open (Task 2-2)
Engine Access Covers Open (Task 4-49)



NOTE

Procedure is same to isolate contamination in the No. 1 (left) or No. 2 (right) fuel system. No. 1 system is shown here.

1. Remove static fuel filter element (1), fuel control elements (2 and 3) and inlet fuel element (4) (TM 55-2840-254-23).
2. **Inspect filter elements (1, 2, 3 and 4).** For contamination as follows.
   a. **If contamination is dirt, sand or grit with no metal particles or chips, flush airframe fuel system (Task 10-36) and engine fuel system (Task 10-37).**
   b. **If metal contamination is found in static fuel filter element (1), do steps (3 thru 25).**
   c. **If metal is found in fuel control filters (2 or 3) or inline fuel filter (4), do step 27.**
3. **Install filters (1, 2, 3 and 4).**



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METAL IN STATIC FILTER

4. Make sure that there is enough fuel in fuel tanks for proper operation of boost pumps.

5. On PDP No. 1 (5), check that following circuit breakers are closed (pushed in):

   LH FUEL PUMP CONT
   AUX AFT (6)
   MAIN AFT (7)
   MAIN FWD (8)
   AUX FWD (9)

   LH FUEL PUMPS
   MAIN FWD (10)
   MAIN AFT (11)
   AUX FWD (12)
   AUX AFT (13)

6. Set FUEL PUMPS LEFT SIDE FWD AUX switch (14) to ON.

7. Check L FUEL PRESS light (15) goes out.

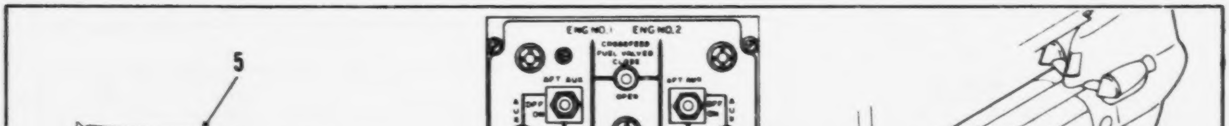
8. Place ear against forward fuel tank (10). If sound of pump is irregular or loud or if light (15) does not go out, the boost pump is defective.

9. If necessary, replace boost pump (Task 10-69 and 10-70).

NOTE

A seized forward tank boost pump can trip its LH FUEL PUMPS circuit breaker (12).

10. Set switch (14) to OFF.


5
6
7
8
9
12
13
10
11
14
ENG NO.1
ENG NO.2
CROSSFEED FUEL VALVES CLOSE
OPEN
AFT AUX
OFF
ON
AFT MAIN FWD
REFUEL STATION
ON
OFF
FWD AUX
TANK
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
FUEL CONTROL
AUX PRESS
16
15
L FUEL LOW
R FUEL LOW
L FUEL PRESS
R FUEL PRESS
APU ON
PWR STEER
HEATER HOT
UTIL HYD SYS
EXT PWR
PARK BRAKE ON
42 X 26
D145-10645-SPA

GO TO NEXT PAGE

10-33 ISOLATING CONTAMINATION (Continued) 10-33

11. Set FUEL PUMPS LEFT SIDE AFT AUX switch (17) to ON.
12. Check L FUEL PRESS light (15) goes out.
13. Place ear against aft fuel tank (18). If sound of pump is irregular or loud or if light (15) does not go out, the boost pump is defective.
14. If necessary, replace boost pump (Task 10-79 and 10-80).

NOTE

A seized aft tank boost pump can trip its LH FUEL PUMPS circuit breaker.

15. Set switch (17) to OFF.
16. Set FUEL PUMPS LEFT SIDE MAIN FWD switch (19) to ON.
17. Check L FUEL PRESS light (15) goes out.
18. Place ear against main fuel tank (20). If sound of pump is irregular or loud or if light (15) does not go out, the boost pump is defective.
19. If necessary, replace boost pump (Task 10-51 and 10-52).

NOTE

A seized main forward boost pump can trip LH FUEL PUMPS circuit breaker (10).

20. Set switch (19) to OFF.
21. Set FUEL PUMPS LEFT SIDE MAIN AFT switch (21) to ON.
22. Check L FUEL PRESS light (15) goes out.
23. Place ear against main fuel tank (22). If sound of pump is irregular or loud or if light (15) does not go out, the boost pump is defective.
24. If necessary, replace boost pump (Task 10-53 and 10-54).

NOTE

A seized main aft boost pump can trip its LH FUEL PUMPS circuit breaker.

25. Set switch (21) to OFF.
26. If all fuel tank boost pumps are satisfactory, replace engine fuel boost pump (Task 4-17 and 4-18).

METAL IN FUEL CONTROL FILTER OR INLINE FUEL FILTER

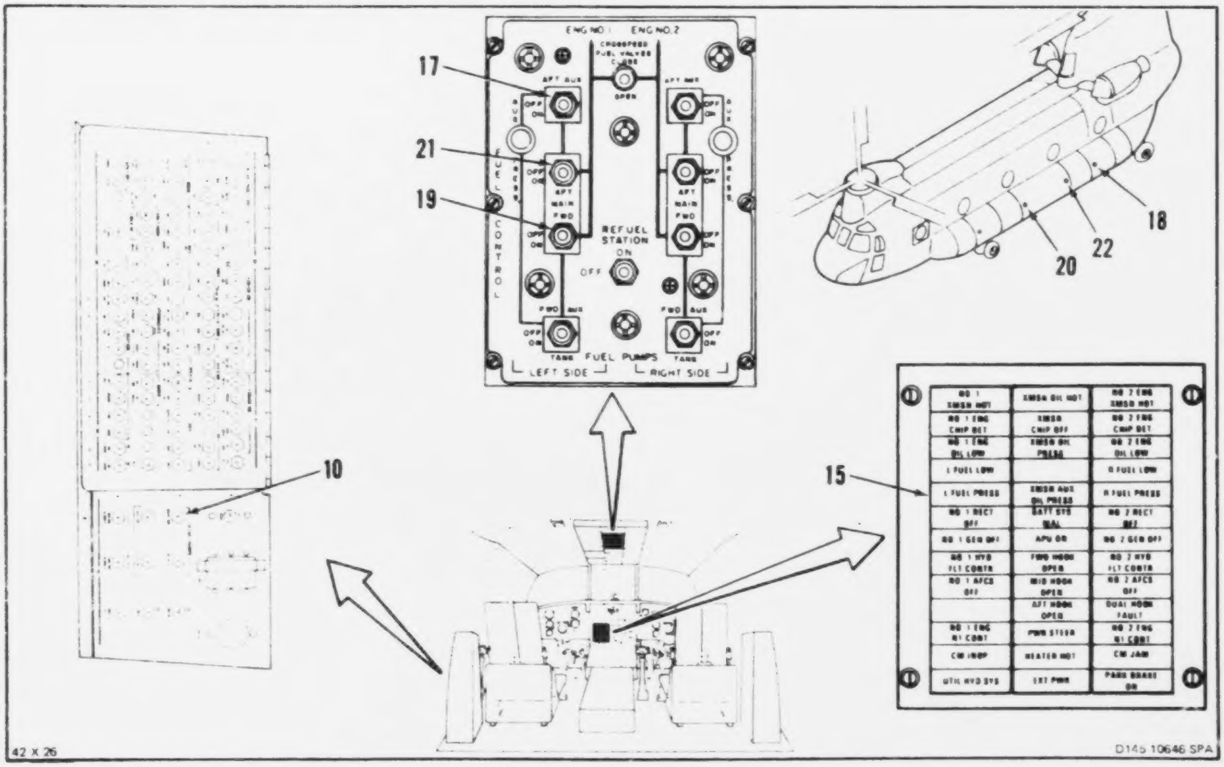
27. Replace engine fuel control unit (TM 55-2840-254-23).
28. Disconnect ac power (Task 1-37).

INSPECT

FOLLOW-ON MAINTENANCE:

Close engine access cover (Task 4-50).

Close engine work platform (Task 2-2).



END OF TASK

10-34 DEFUELING WITH AC POWER ON HELICOPTER 10-34

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Cloths (E135)

Personnel Required:

Petroleum Supply Specialist
Medium Helicopter Repairer

References:

FM 10-68

Equipment Condition:

Helicopter Parked on Level Ground at Least 50 Feet From Hangar or Structure (Task 1-25)
Battery Connected (Task 1-39)
Apply Electrical Power (Task 1-37)
Helicopter Grounded (Task 1-29)
Defueling Vehicle Grounded to Helicopter
Cargo Ramp Open (TM 55-1520-240-T)
Grounded Container, Five Gallon

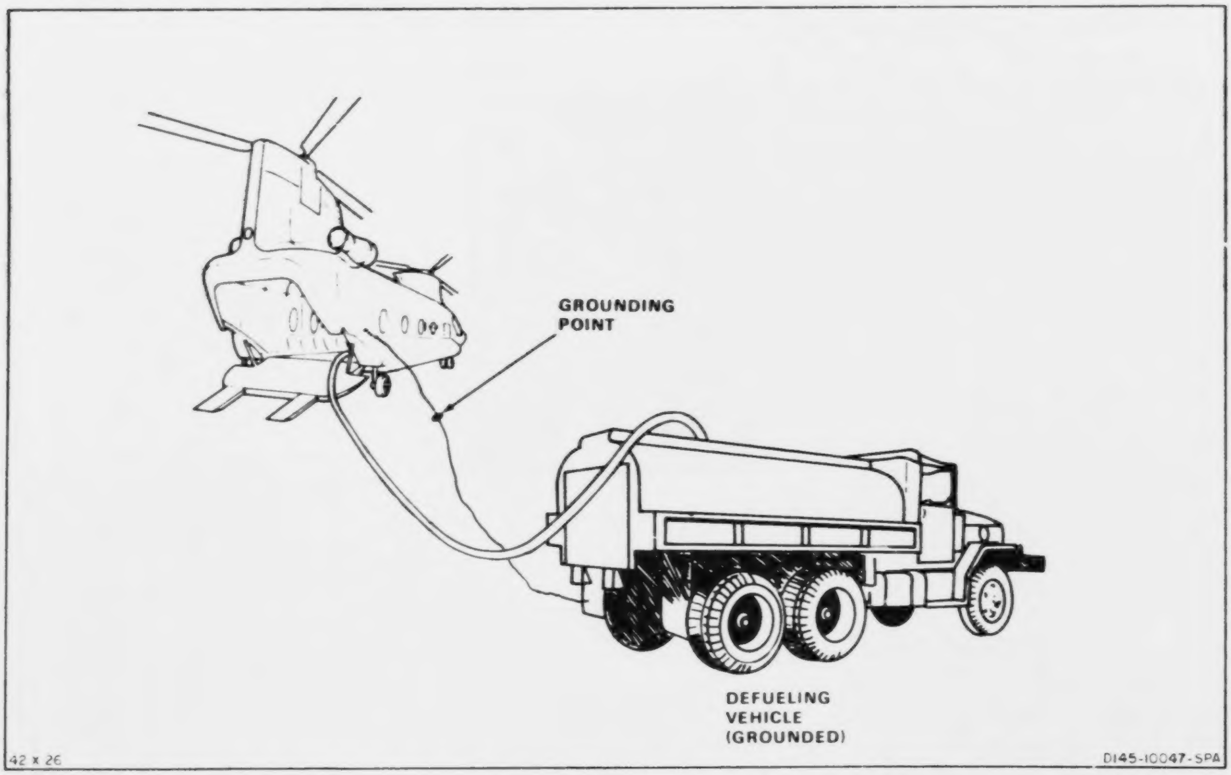
General Safety Instructions:

WARNING

Proper electrical grounding is essential to prevent damage to equipment and injury to personnel.

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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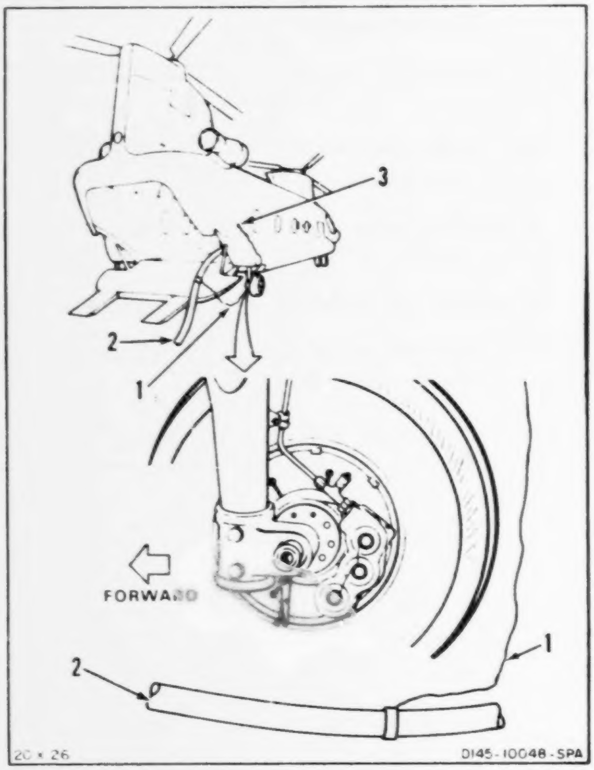
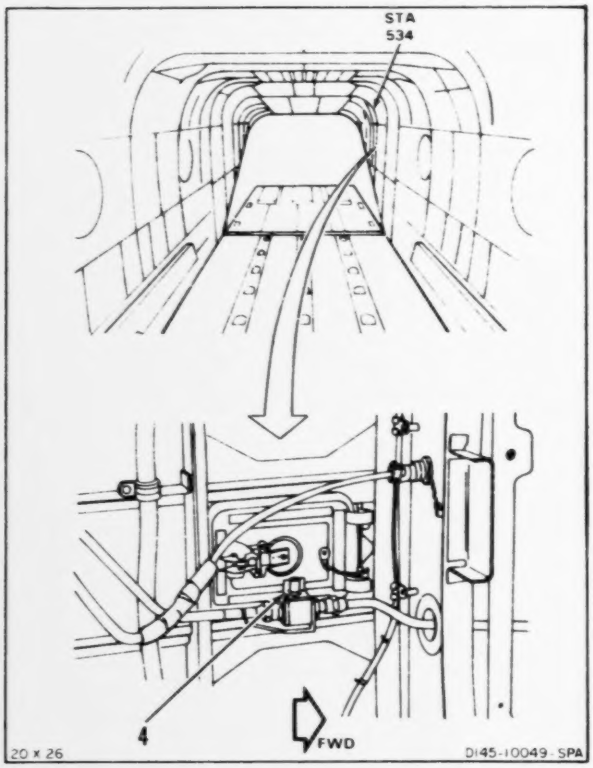
10-34 DEFUELING WITH AC POWER ON HELICOPTER (Continued) 10-34

1. **Connect ground wire (1)** of defueling hose (2) **to helicopter ground point (3)** (FM 10-68).


3
2
1
FORWARD
2
1
20 × 26
D145-10048-SPA

2. **Manually close apu shutoff valve lever (4).**


STA
534
4
FWD
20 × 26
D145-10049-SPA

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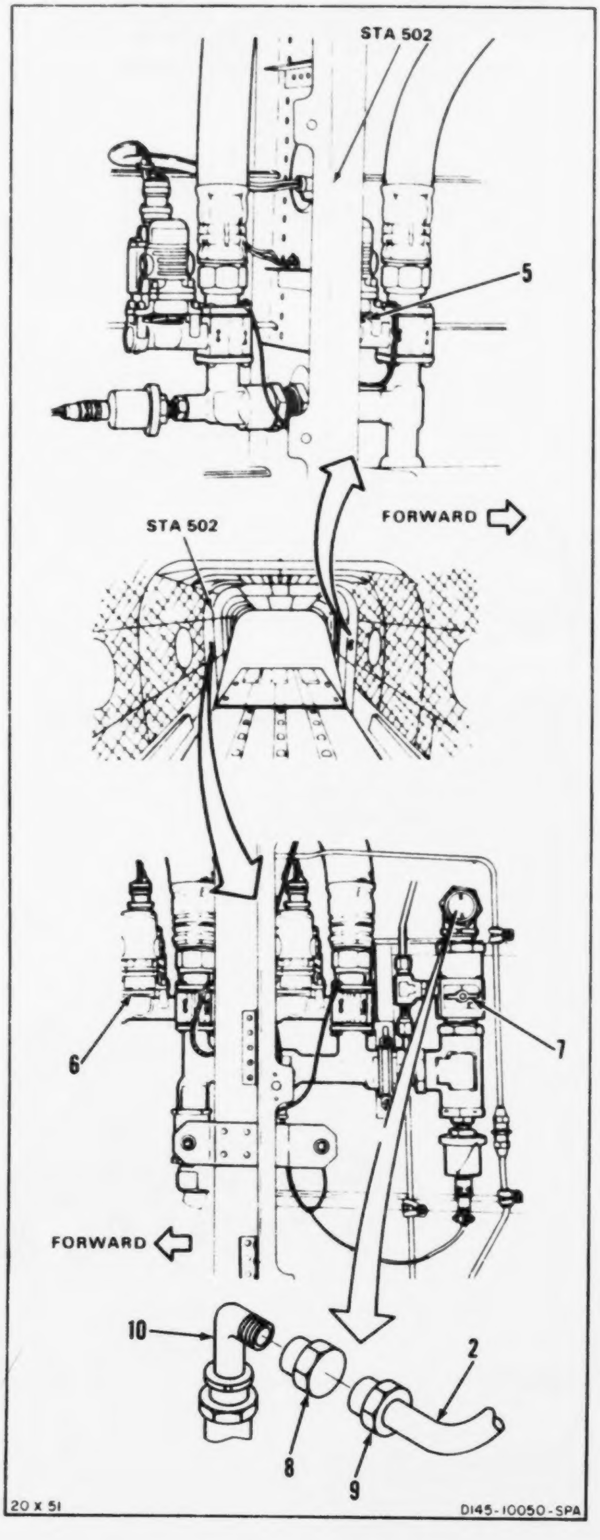
10-34 DEFUELING WITH AC POWER ON HELICOPTER (Continued) 10-34

3. **Manually close** engine No. 1 fuel shutoff valve **lever (5).**
4. **Manually close** engine No. 2 fuel shutoff valve lever (6).
5. **Manually close** defueling valve **lever (7).**
6. Remove blanking cap (8). Connect hose connector (9) to elbow (10).


STA 502
5
STA 502
FORWARD
6
7
FORWARD
10
2
8
9
20 X 51
D145-10050-SPA

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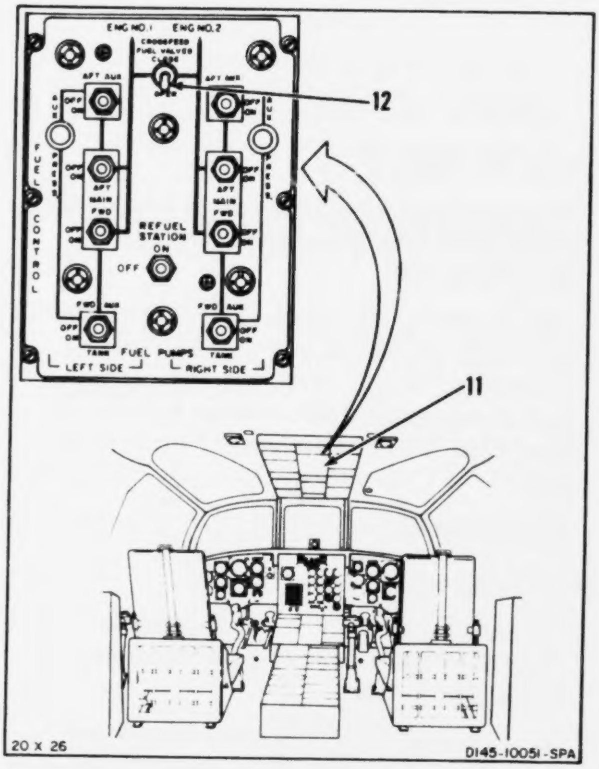
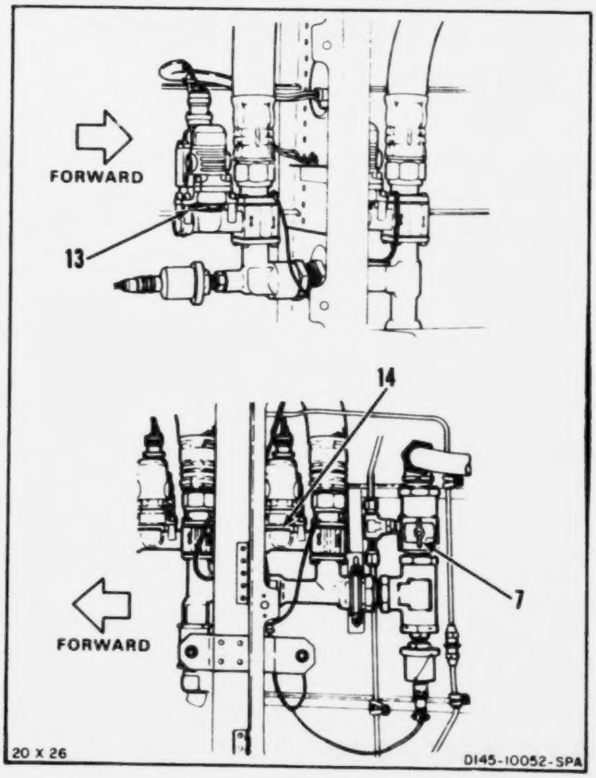
10-34 DEFUELING WITH AC POWER ON HELICOPTER (Continued) 10-34

7. On overhead panel (11) **set CROSSFEED FUEL VALVES switch (12) to OPEN.**


ENG NO.1
ENG NO.2
CROSSFEED FUEL VALVES
CLOSE
OPEN
AFT AUX
OFF
ON
AUX PRESS
FUEL CONTROL
AFT
MAIN
FWD
REFUEL STATION
ON
OFF
FWD AUX
TANK
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
12
11
20 x 26
D145-10051-SPA

8. **Make sure** crossfeed fuel valve **levers (13 and 14) are at OPEN** position.
9. Manually **open defueling valve lever (7).**


FORWARD
13
14
FORWARD
7
20 x 26
D145-10052-SPA

GO TO NEXT PAGE

10-34 DEFUELING WITH AC POWER ON HELICOPTER (Continued) 10-34

NOTE

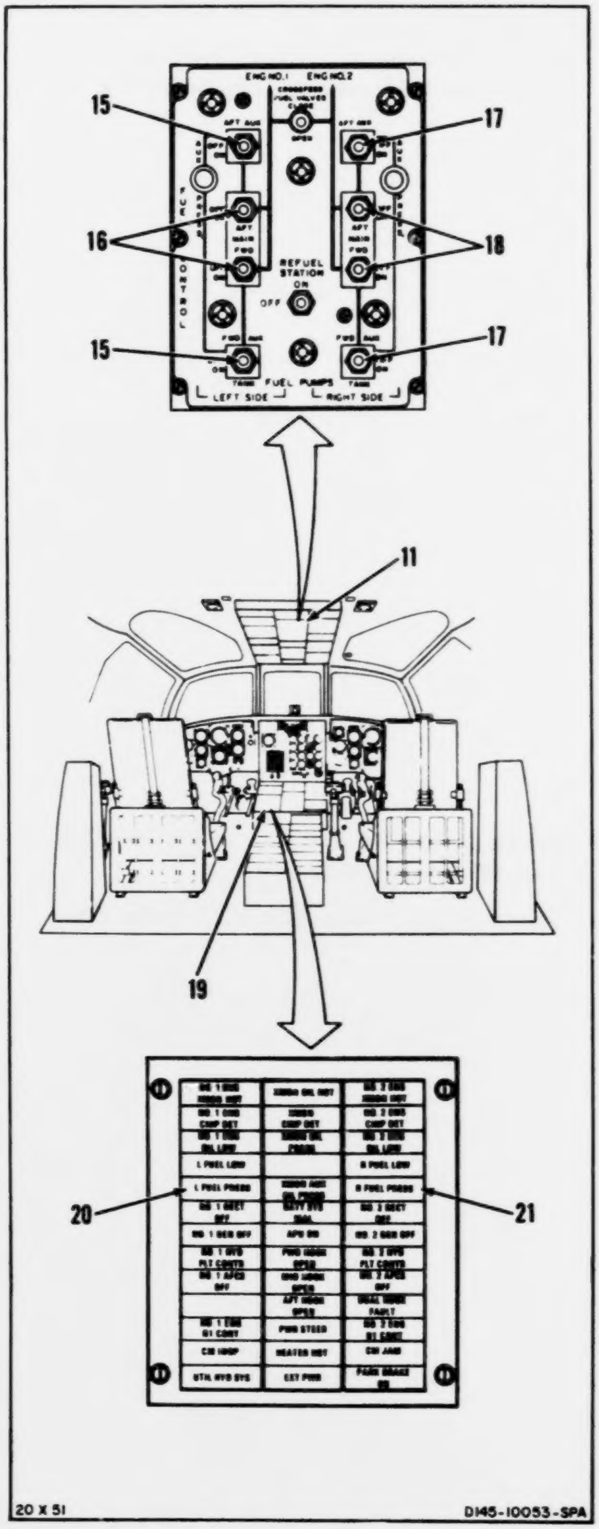
Fuel tanks may be defueled all together or one at a time.

DEFUEL ALL TANKS

10. On overhead panel (11) **set eight ENG NO. 1 and ENG NO. 2 switches (15, 16, 17 and 18) to ON.**
11. Observe panel (19), **when L FUEL PRESS light (20) comes on, set four ENG NO. 1 switches (15 and 16) to off. When right fuel pressure light (21) comes on, set four ENG NO. 2 switches (17 and 18) to off.**
12. **Go to step 22.**

DEFUEL ANY MAIN TANK

13. On overhead panel (11), **set applicable MAIN AFT and MAIN FWD switches (16 or 18) to ON.**
14. Observe panel (19). **When applicable fuel pressure light (20 or 21) comes on, set applicable switches (16 or 18) to OFF.**
15. **Go to step 22.**



ENG NO. 1
ENG NO. 2
CROSSFEED FUEL VALVES
REFUEL STATION
ON
OFF
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
15
16
17
18
15
17
11
19
L FUEL PRESS
R FUEL PRESS
20
21
20 X 51
D145-10053-SPA

GO TO NEXT PAGE

10-34 DEFUELING WITH AC POWER ON HELICOPTER (Continued) 10-34

DEFUEL ANY FORWARD OR AFT TANK

16. **Set FUEL QUANTITY selector (22) to position applicable to tank(s) to be defueled.**

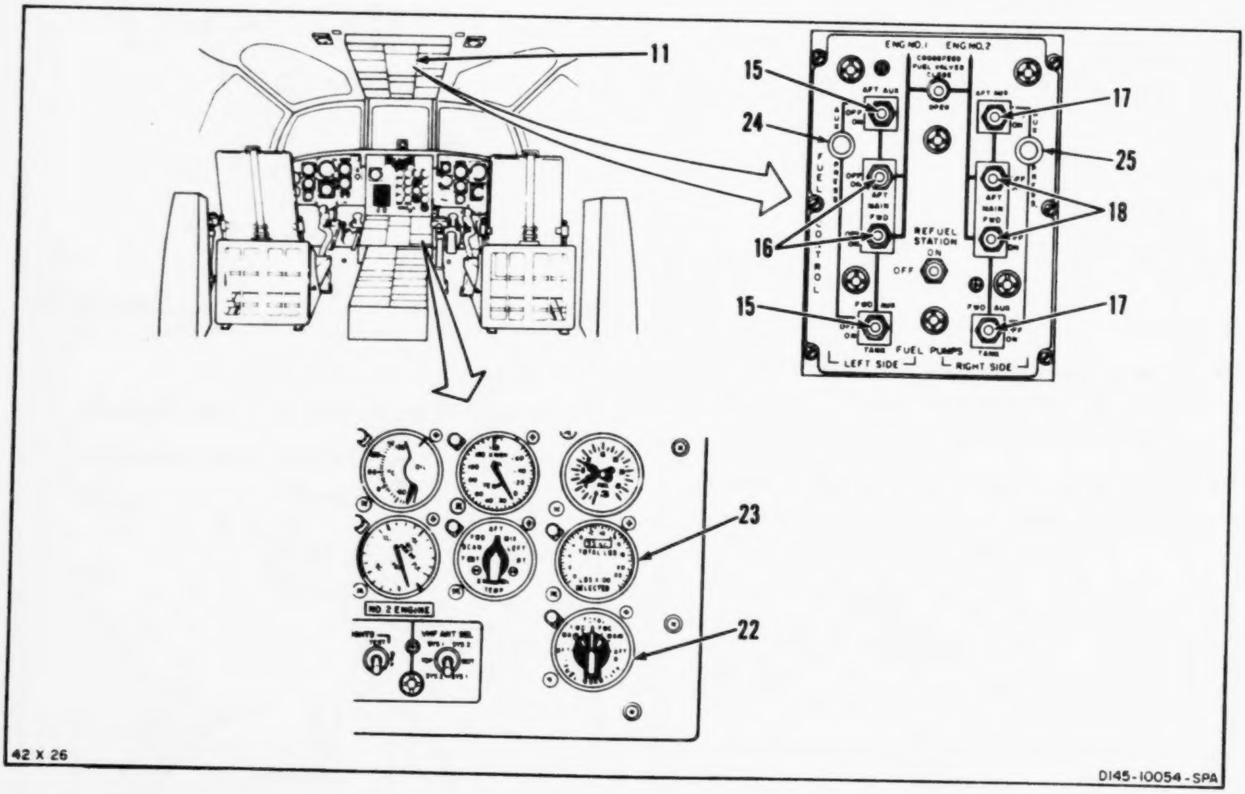
17. **Note reading(s) on indicator (23). Subtract reading from 1700. Note resultant figure.**

18. **Set MAIN AFT and MAIN FWD switches (16 or 18), for applicable side of helicopter, to ON.**

19. **Observe indicator (23). When indicator reads below resultant figure in step 17, set switches (16 or 18) to OFF.**

20. **Set applicable AFT AUX or FWD AUX switch (15 or 17) to ON.**

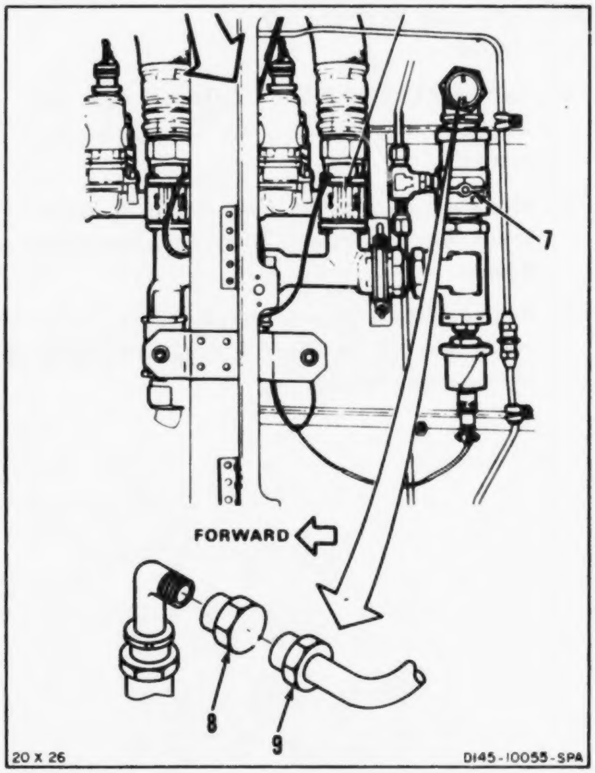
21. Observe panel (11). When applicable FUEL PRESS light (24 or 25) comes on, set switch(es) (15 or 17) to OFF.


11
15
24
16
15
17
25
18
17
ENG NO.1
ENG NO.2
CROSSFEED FUEL VALVES
CLOSE
OPEN
AFT AUX
OFF
ON
AFT
MAIN
FWD
REFUEL STATION
ON
OFF
FWD AUX
TANK
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
FUEL CONTROL
NO 2 ENGINE
23
22
42 X 26
D145-10054-SPA

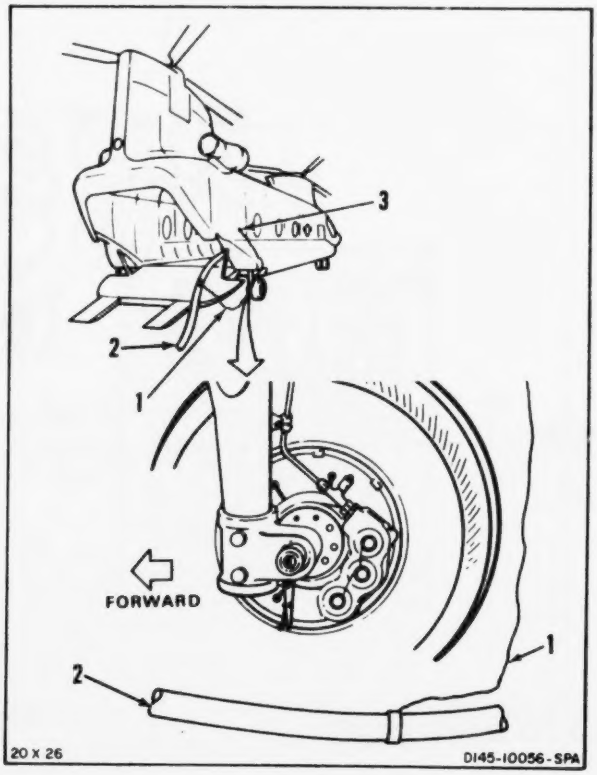
GO TO NEXT PAGE

10-34 DEFUELING WITH AC POWER ON HELICOPTER (Continued) 10-34

22. **Manually close** defueling valve **lever (7).**
23. **Disconnect hose connector (9). Install blanking cap (8).**


7
FORWARD
8
9
20 X 26
DI45-10055-SPA

24. **Disconnect ground wire (1)** of hose (2) from helicopter ground point (3). Remove hose from helicopter.
25. Remove ac power from helicopter (Task 1-37).


3
2
1
FORWARD
1
2
20 X 26
DI45-10056-SPA

GO TO NEXT PAGE

10-34 DEFUELING WITH AC POWER ON HELICOPTER (Continued) 10-34

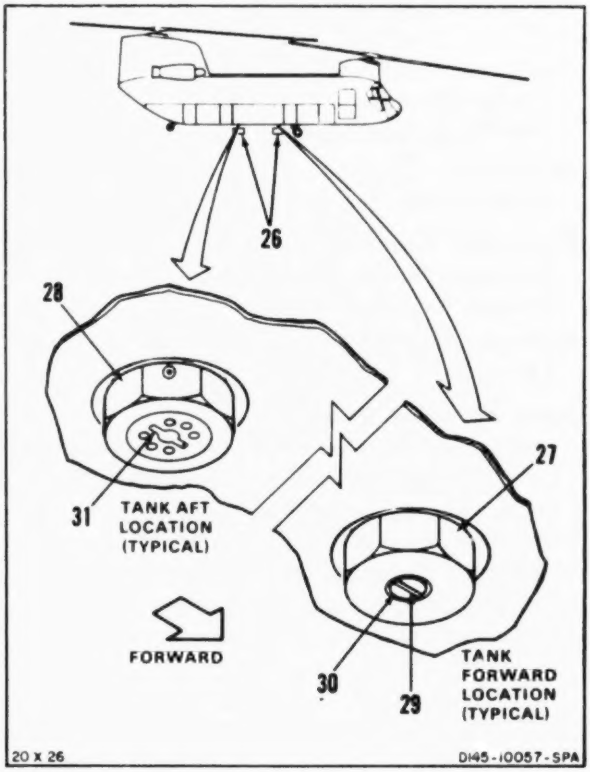
26. Position grounded container(s) (26) under drain valves (27 and 28) of applicable tank(s).

27. Insert screwdriver in slot (29) of **forward drain valve (27).** Push up and turn drain valve stem (30) clockwise. **Drain remaining fuel into container (26).** Remove screwdriver.

28. Insert screwdriver in slot (31) of **aft drain valve (28). Drain remaining fuel into container (26).** Remove screwdriver.

29. Remove grounded container(s) (26).

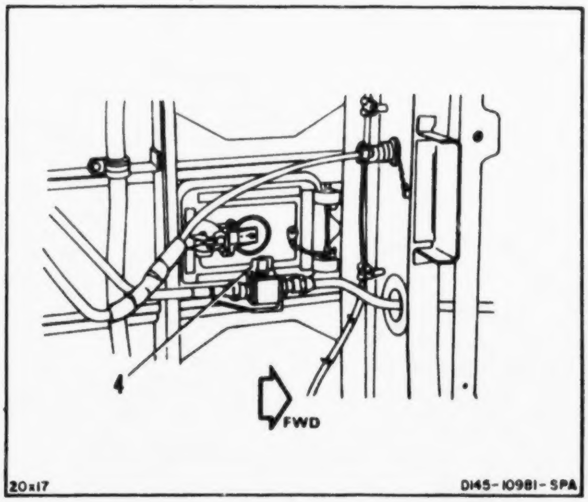
30. Clean up any spilled fuel. Use cloths (E135).


26
28
27
31
TANK AFT LOCATION (TYPICAL)
FORWARD
30
29
TANK FORWARD LOCATION (TYPICAL)
20 x 26
D145-10057-SPA

31. Manually open apu shutoff valve lever (4).

FOLLOW-ON MAINTENANCE:

None


4
FWD
20x17
D145-10981-SPA

END OF TASK

10-35 DEFUELING WITHOUT AC POWER ON HELICOPTER 10-35

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Cloths (E135)

Personnel Required:

Petroleum Supply Specialist
Medium Helicopter Repairer

References:

FM 10-68

Equipment Condition:

Helicopter Parked on Level Ground at Least 50 Feet From Hangar or Structure (Task 1-25)
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Defueling Vehicle Grounded to Helicopter
Grounded Container, Five Gallon

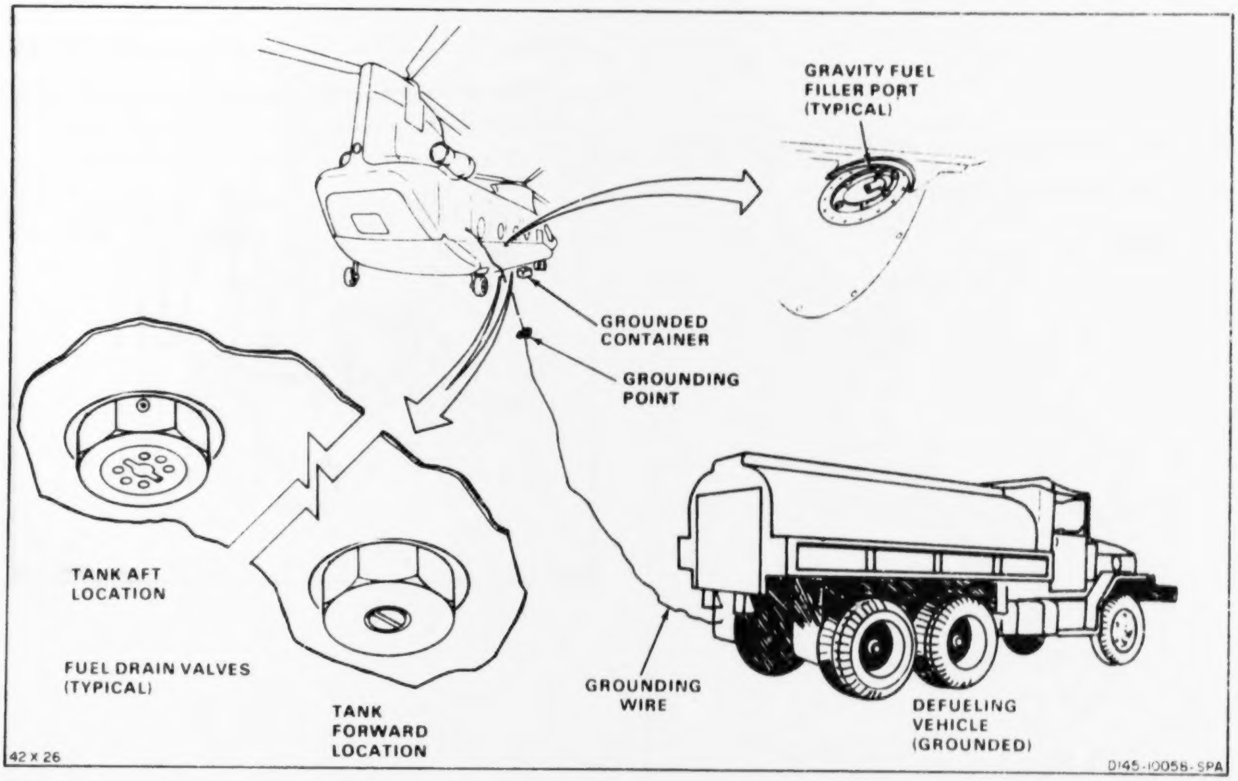
General Safety Instructions:

WARNING

Proper electrical grounding is essential to prevent damage to equipment and injury to personnel.

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


GRAVITY FUEL FILLER PORT (TYPICAL)
GROUNDED CONTAINER
GROUNDING POINT
TANK AFT LOCATION
FUEL DRAIN VALVES (TYPICAL)
TANK FORWARD LOCATION
GROUNDING WIRE
DEFUELING VEHICLE (GROUNDED)
42 x 26
D145-10058-SPA

GO TO NEXT PAGE

10-35 DEFUELING WITHOUT AC POWER ON HELICOPTER (Continued) 10-35

NOTE

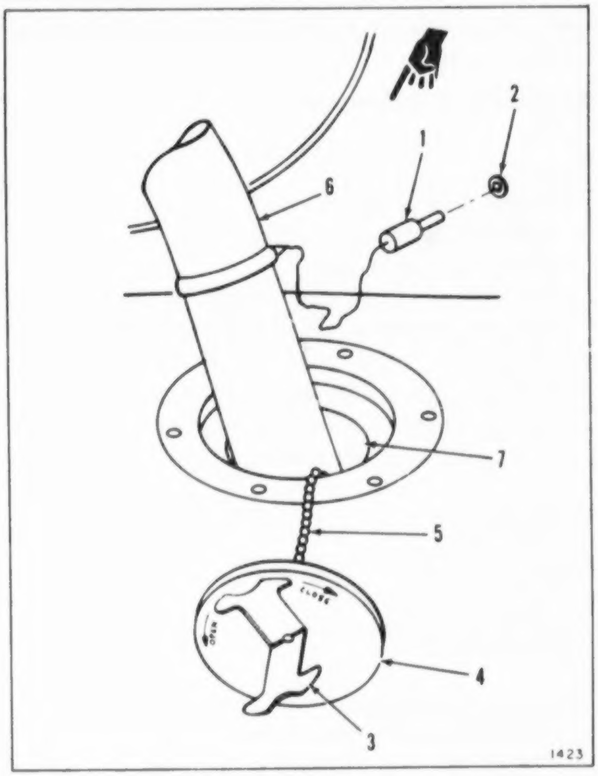
Procedure is same to defuel any fuel tank. Defueling of right main tank is shown here.

1. **Attach hose grounding lead (1)** into helicopter ground socket (2) (FM 10-68).
2. Raise filler cap latch (3). Rotate cap (4) counterclockwise. **Remove cap** and allow it to hang on retention chain (5).

CAUTION

Take care when inserting and removing defueling hose. Damage to cell walls and internal components can result.

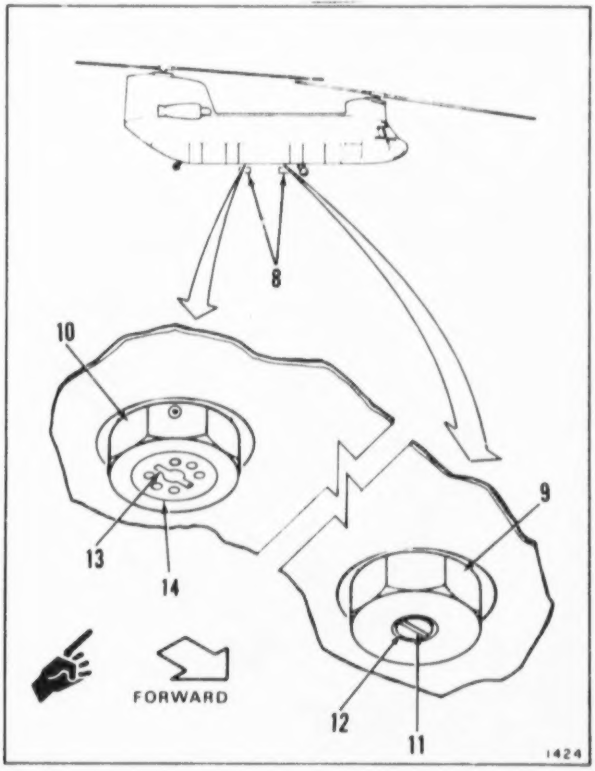
3. **Insert defueling hose (6)** into filler opening (7).
4. **Defuel tank cell.**
5. **Remove defueling hose (6)** from helicopter.
6. **Remove lead (1)** from socket (2).
7. **Install** and lock filler **cap (4).**



8. **Position grounded container(s) (8) under drain valves (9 and 10)** of applicable tank(s).
9. Insert screwdriver in slot (11) of forward drain valve (9). Push up and turn drain valve stem (12) clockwise. **Drain remaining fuel into container (8).** Remove screwdriver.
10. Insert screwdriver in slot (13) of aft drain valve (10). Turn drain valve stem (14) counterclockwise. **Drain remaining fuel into container (8).** Remove screwdriver.
11. Remove grounded container(s) (8).
12. Clean up any spilled fuel. Use cloths (E135).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

10-36 FLUSHING AIRFRAME FUEL SYSTEM 10-36

INITIAL SETUP

Applicable Configurations:
All

Tools:
- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Container, Two Gallon
- Drain Hoses (2), Approximately 16 Feet Long, One End to Have 7/8-Inch Standard Male Union
- Drain (1), Approximately 16 Feet Long, One End to Have 9/16-Inch Standard Male Union
- Air Supply, Approximately 80 Psi

Materials:
- Cloths (E135)
- Solvent (E162)
- Vinegar (E436)
- Gloves (E186)

Personnel Required:
- 67U10 Medium Helicopter Repairer
- 67U20 Medium Helicopter Repairer
- 67U30 Inspector

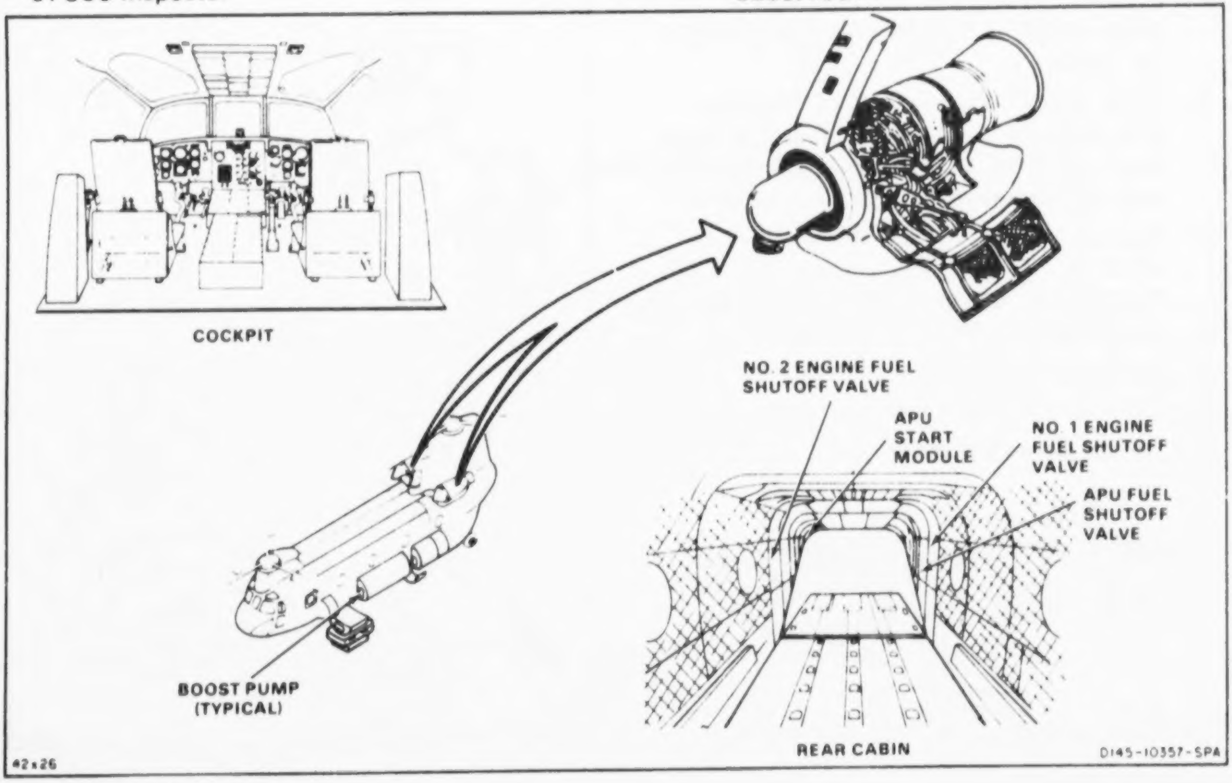
References:
- Task 10-70
- Task 10-52
- Task 10-54
- Task 10-80
- TM 55-2840-254-23
- Task 1-51
- Task 1-37
- Task 10-9
- Task 10-117
- Task 10-118
- Task 10-119
- Task 10-120

Equipment Condition:
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Helicopter Grounded (Task 1-29)
- Helicopter Defueled (Task 10-34 or 10-35)
- Fuel Tanks Purged (Task 10-2)
- All Fuel Boost Pumps Removed (Task 10-69, 10-51, 10-53, and 10-79)
- Engine Work Platforms Open (Task 2-2)
- Engine Access Covers Open (Task 4-49)
- Grounded Container, 50 Gallon

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


COCKPIT
NO. 2 ENGINE FUEL SHUTOFF VALVE
APU START MODULE
NO. 1 ENGINE FUEL SHUTOFF VALVE
APU FUEL SHUTOFF VALVE
BOOST PUMP (TYPICAL)
REAR CABIN
42x26
D145-10357-SPA

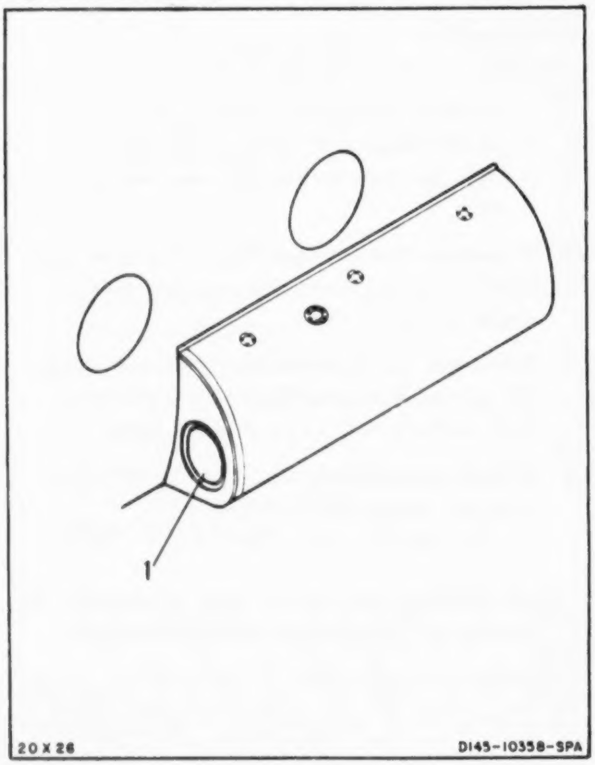
GO TO NEXT PAGE

10-36 FLUSHING AIRFRAME FUEL SYSTEM (Continued) 10-36

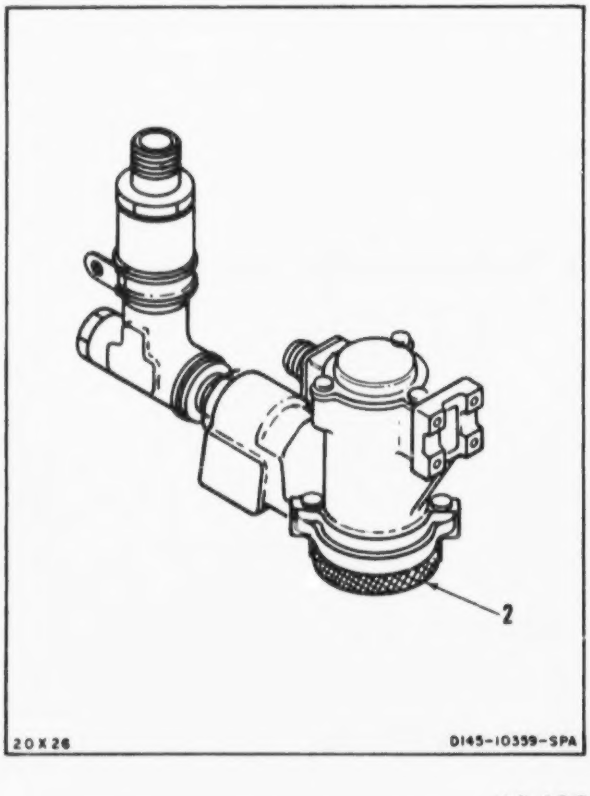
1. Follow instructions of Task 10-9, Fuel Cell Precautionary Criteria, General Information.
2. **Inspect interior of fuel cells (1)** for dirt or contaminants.
3. Wipe out any dirt or other contaminants. **Clean the interior of cells (1).** Use clean cloth (E135) damp with 50-50 solution of vinegar (E436) and water.

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



4. **Clean boost pump screens (2)** by sloshing. Use two gallon container and dry cleaning solvent (E162). Wear gloves (E186).
5. **Remove any remaining contaminants from screens (2) with compressed air.**
6. Perform vent system pressure test (Task 10-117).
7. **Install eight fuel boost pumps** (Task 10-52, 10-54, 10-70 and 10-80).
8. Perform vent system flow test (Task 10-118), pressure refueling system test (Task 10-119), and fuel feed system test (Task 10-120).
9. **Refuel helicopter** (Task 1-51).

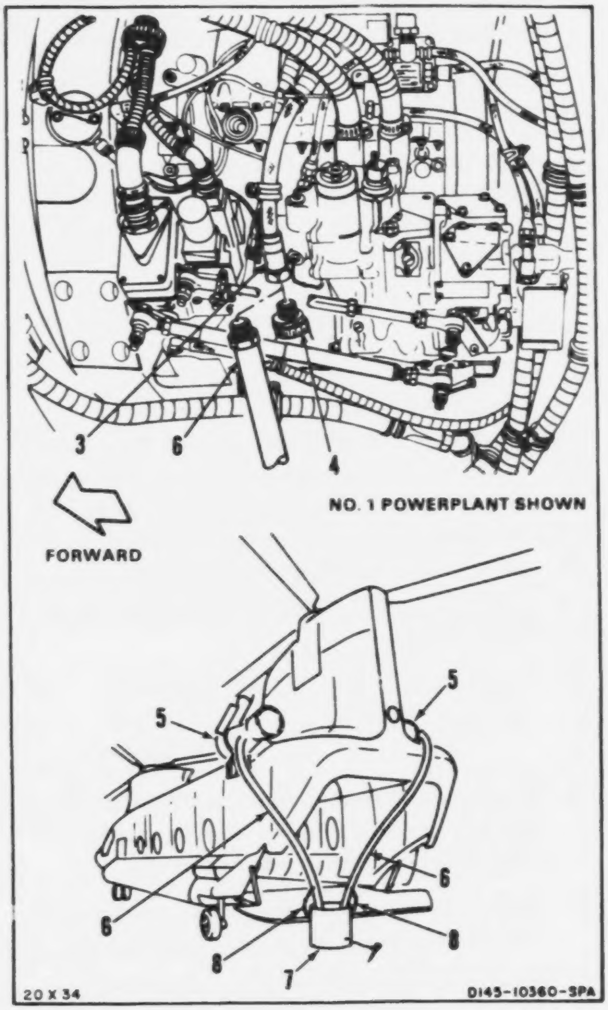


GO TO NEXT PAGE

CAUTION

Do not use tape to seal open ports. Tape adhesive is soluble in fuel and can cause contamination.

10. **Disconnect fuel hose (3)** from engine fuel control nipple (4) on both engines (5). Cap nipple on fuel control.
11. **Connect one drain hose (6) to fuel hose (3) on each engine (5).** Place free end of each drain hose in grounded container (7).
12. **Attach grounding wire (8)** on each drain hose (6) to grounded container (7).


3
6
4
FORWARD
NO. 1 POWERPLANT SHOWN
5
5
6
6
8
8
7
20 X 34
D145-10360-SPA

13. Apply ac power to helicopter (Task 1-37).

GO TO NEXT PAGE

10-36 FLUSHING AIRFRAME FUEL SYSTEM (Continued) 10-36

14. On No. 1 PDP panel (9), **check** that following **circuit breakers are closed** (pushed in).

    XFEED CONT (10)
    LH FUEL PUMP CONT
      AUX AFT (11)
      MAIN AFT (12)
      MAIN FWD (13)
      AUX FWD (14)

    LH FUEL PUMPS
      MAIN FWD (15)
      MAIN AFT (16)
      AUX FWD (17)
      AUX AFT (18)

    APU CONT
      NORM (19)
      EMERG (20)

15. On NO. 1 PDP panel (9), **open** (pull out) **FUEL SHUT OFF circuit breaker (21).**

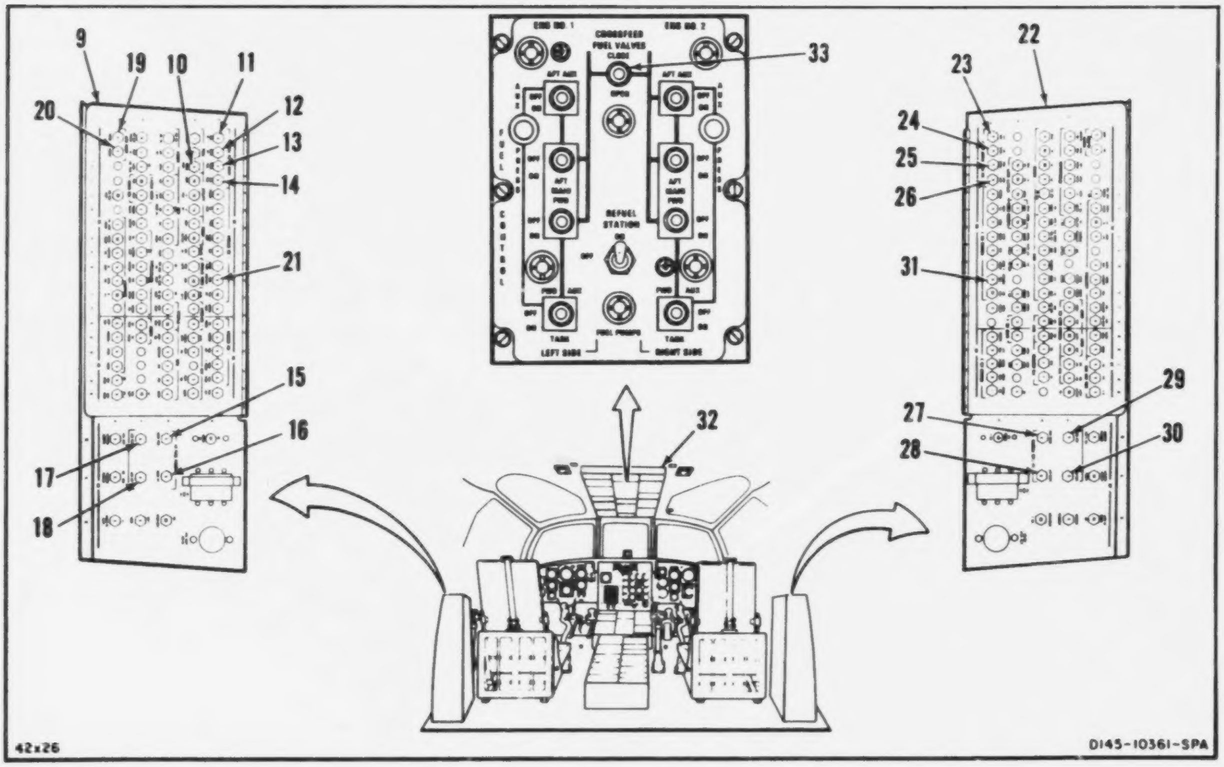
16. On NO. 2 PDP panel (22) **check that** following **circuit breakers are closed** (pushed in).

    RH FUEL PUMP CONT
      AUX AFT (23)
      MAIN AFT (24)
      MAIN FWD (25)
      AUX FWD (26)

    RH FUEL PUMPS
      MAIN FWD (27)
      MAIN AFT (28)
      AUX FWD (29)
      AUX AFT (30)

17. On No. 2 PDP panel (22) **open** (pull out) **FUEL SHUT OFF** circuit breaker (31).

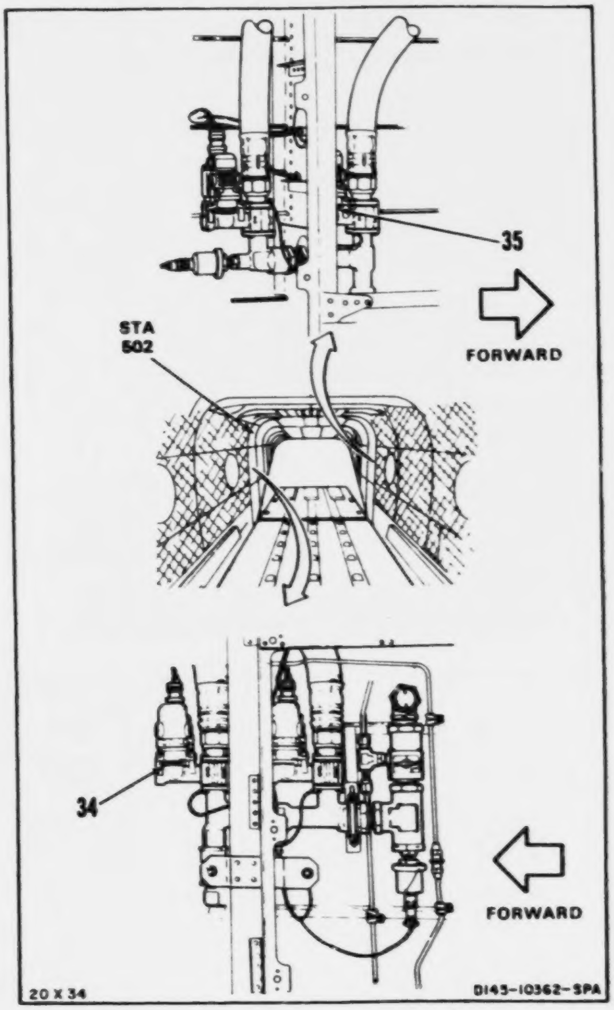
18. On overhead panel (32) **set CROSSFEED FUEL VALVES switch (33) to OPEN.**


9
19
10
11
20
12
13
14
21
15
16
17
18
33
32
22
23
24
25
26
31
27
28
29
30
CROSSFEED FUEL VALVES
CLOSE
REFUEL STATION
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
42x26
D145-10361-SPA

GO TO NEXT PAGE

10-36 FLUSHING AIRFRAME FUEL SYSTEM (Continued) 10-36

19. **Manually move No. 2 engine shutoff valve lever (34) to CLOSE.**
20. **Make sure No. 1 engine shut off valve lever (35) is at OPEN.**


35
STA 502
FORWARD
34
FORWARD
20 X 34
D143-10362-SPA

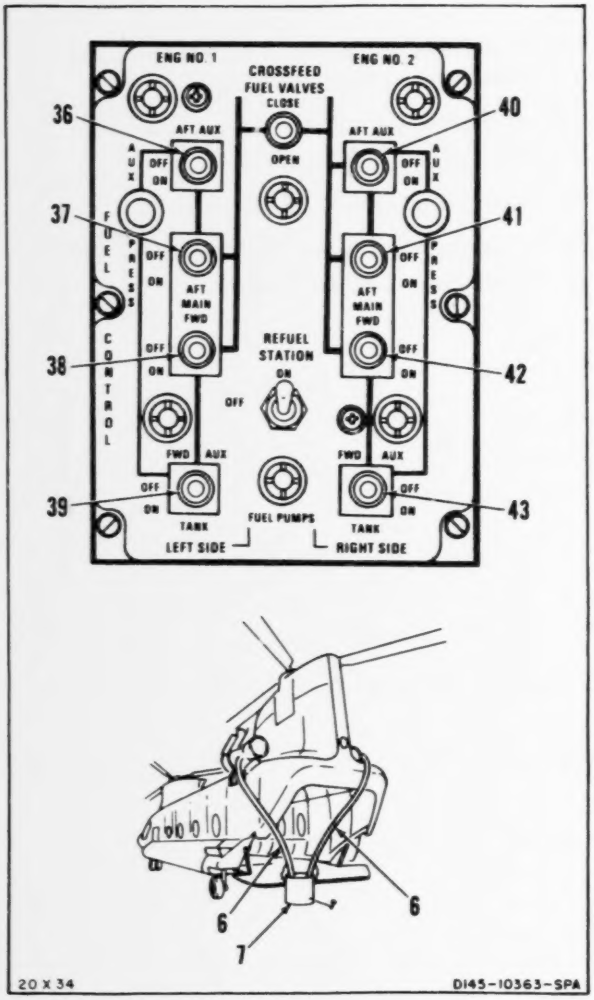
GO TO NEXT PAGE

10-36 FLUSHING AIRFRAME FUEL SYSTEM (Continued) 10-36

21. **Set each of eight FUEL PUMPS switches (36 thru 43) momentarily to ON** one at a time.

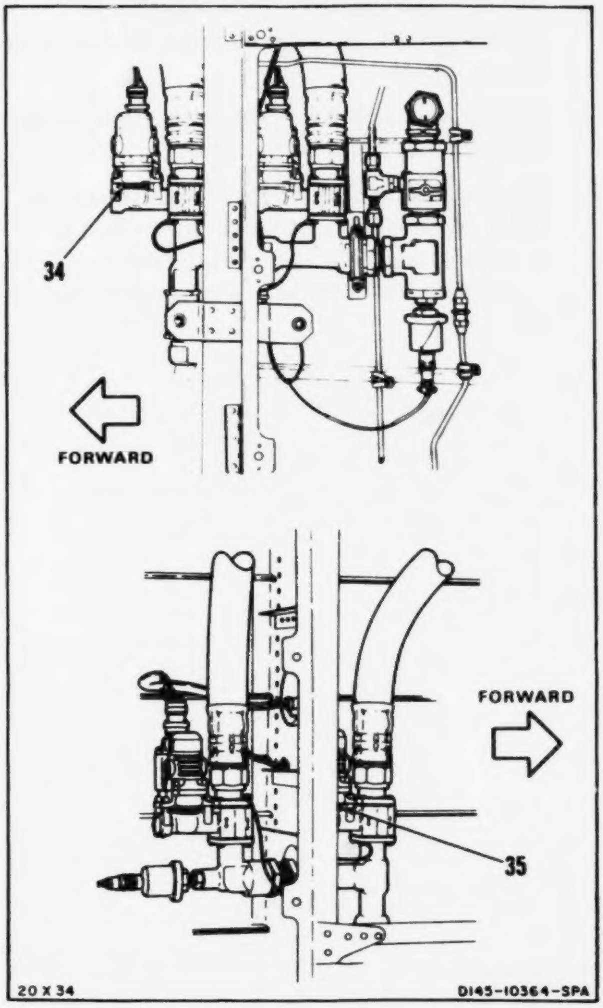
22. **Set all eight FUEL PUMPS switches (36 thru 43) to ON** at same time.

23. **Set all eight FUEL PUMPS switches (36 thru 43) to OFF** when approximately 15 gallons of fuel has been pumped through open drain hoses (6) into grounded container (7).


ENG NO. 1
CROSSFEED FUEL VALVES
ENG NO. 2
CLOSE
OPEN
36
40
AFT AUX
AFT AUX
AUX
OFF
ON
OFF
ON
AUX
37
41
FUEL PRESS
PRESS
OFF
ON
AFT MAIN FWD
AFT MAIN FWD
OFF
ON
CONTROL
REFUEL STATION
ON
OFF
38
42
OFF
ON
OFF
ON
FWD
AUX
FWD
AUX
39
43
OFF
ON
OFF
ON
TANK
FUEL PUMPS
TANK
LEFT SIDE
RIGHT SIDE
6
6
7
20 X 34
D145-10363-SPA

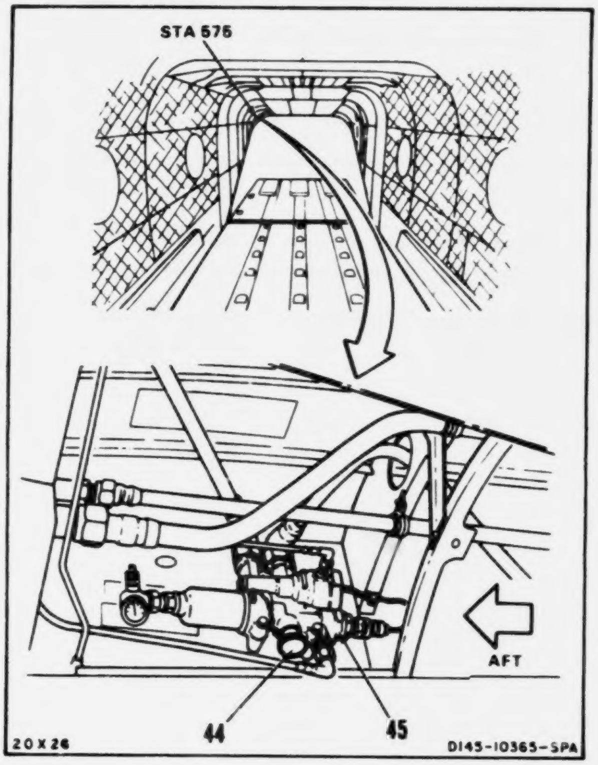
GO TO NEXT PAGE

24. **Manually move No. 2 engine shutoff valve lever (34) to OPEN.**
25. **Manually move No. 1 engine shutoff valve lever (35) to CLOSE.**
26. **Repeat steps 21, 22 and 23.**
27. **Manually move No. 2 engine shutoff valve lever (34) to CLOSE.**


34
FORWARD
FORWARD
35
20 X 34
D145-10364-SPA

10-36 FLUSHING AIRFRAME FUEL SYSTEM (Continued) 10-36

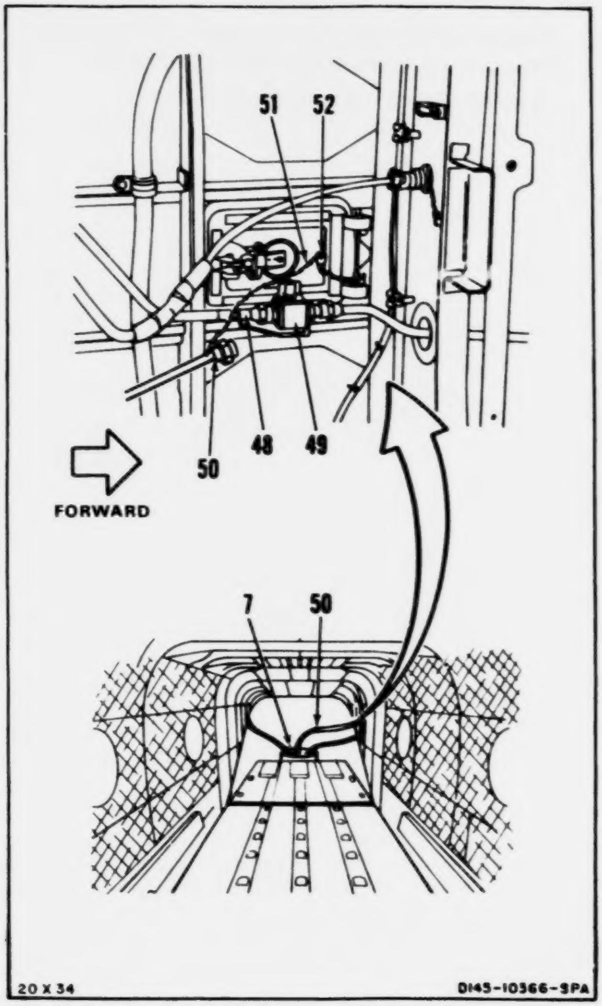
28. **Press button (44)** on apu start module (45). When sounds of utility hydraulic system depressurizing stop, release button.


STA 575
AFT
44
45
20X26
D145-10365-SPA

GO TO NEXT PAGE

10-36 FLUSHING AIRFRAME FUEL SYSTEM (Continued) 10-36

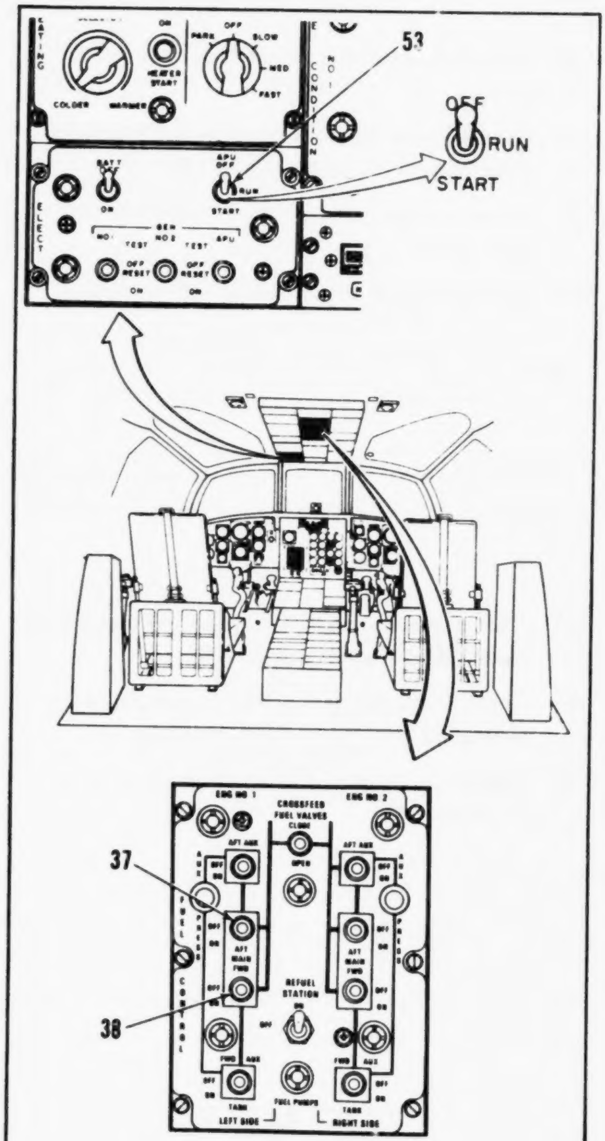
29. **Disconnect fuel line (48)** from apu shutoff valve (49).
30. **Connect drain hose (50)** to valve (49).
31. **Connect drain hose grounding wire (51)** to convenient helicopter ground point (52).
32. **Place free end of drain hose (50) in grounded container (7).**
33. **Make sure apu shutoff valve (49) is OPEN.**


51
52
50
48
49
FORWARD
7
50
20 X 34
DI45-10366-SPA

GO TO NEXT PAGE

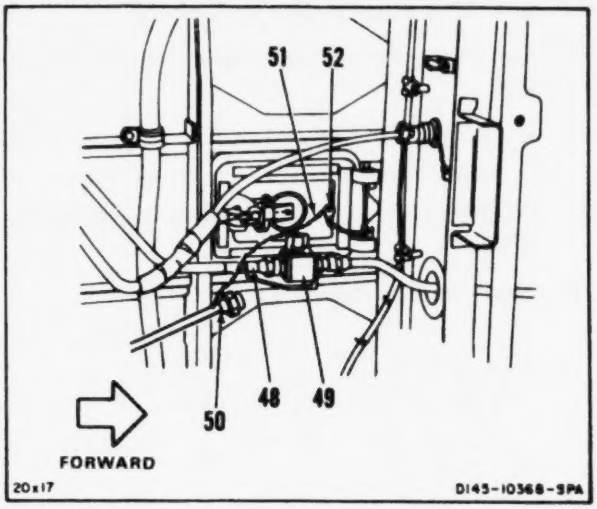
10-36 FLUSHING AIRFRAME FUEL SYSTEM (Continued) 10-36

34. **Set APU switch (53) to START.**
35. **Set FUEL PUMP switches (37 and 38) to ON.**
36. Allow approximately 2 gallons of fuel to flow into grounded container (7).
37. **Set FUEL PUMP switches (37 and 38) to OFF.**
38. **Set APU switch (53) to OFF.**


53
OFF
RUN
START
COLDER
WARMER
HEATER START
PARK
OFF
SLOW
MED
FAST
BATT
OFF
ON
APU
OFF
RUN
START
GEN
NO 1
NO 2
APU
TEST
OFF RESET
ON
ENG NO 1
ENG NO 2
CROSSFEED FUEL VALVES
CLOSE
OPEN
AFT AUX
AFT MAIN FWD
REFUEL STATION
ON
OFF
FWD AUX
TANK
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
FUEL CONTROL
37
38
7
20x51
D145-10367-SPA

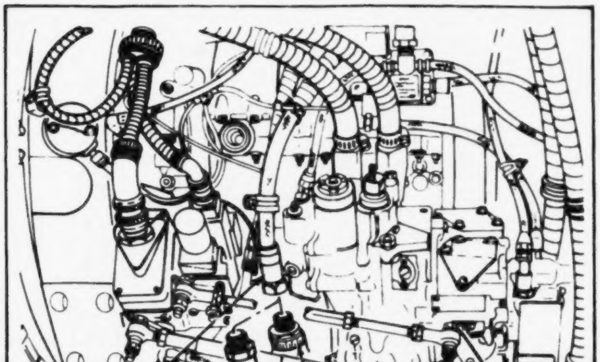
GO TO NEXT PAGE

10-36 FLUSHING AIRFRAME FUEL SYSTEM (Continued) 10-36


51
52
50
48
49
FORWARD
20x17
D145-10368-SPA

39. **Disconnect drain hose (50)** from valve (49).
40. **Disconnect drain hose grounding wire (51)** from helicopter ground point (52).
41. **Remove drain hose (50)** from vicinity of helicopter.
42. **Connect fuel hose (48)** to valve (49).

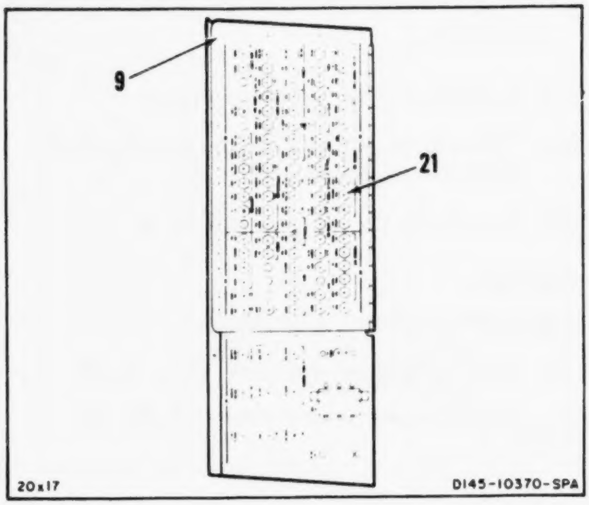
43. **Disconnect one drain hose (6) from fuel hose (3) on each engine (5).**
44. Remove cap from fuel control nipple (4). **Connect fuel hose (3) to nipple.**
45. **Disconnect grounding wire (8)** on each drain hose (6).


3
6
4
FORWARD
5
5
6
6
8
8
20 X 34
D145-10369-SPA

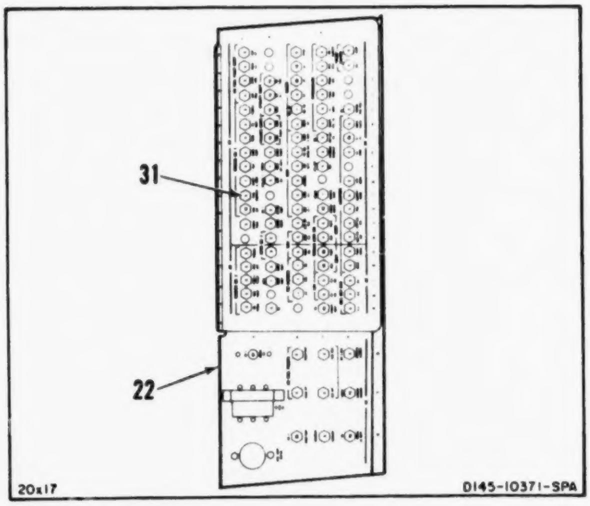
GO TO NEXT PAGE

10-36 FLUSHING AIRFRAME FUEL SYSTEM (Continued) 10-36

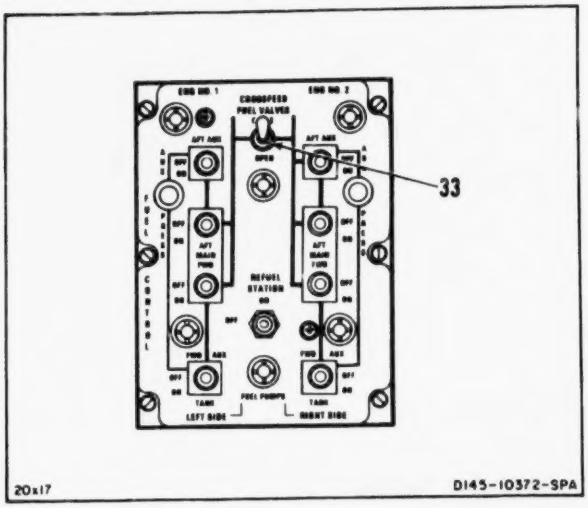
46. On No. 1 PDP panel (9) **close** (push in) **FUEL SHUT OFF circuit breaker (21).**


9
21
20x17
D145-10370-SPA

47. On No. 2 PDP panel (22) **close** (push in) **FUEL SHUTOFF circuit breaker (31).**


31
22
20x17
D145-10371-SPA

48. **Set CROSSFEED FUEL VALVES switch (33) to CLOSE.**


ENG NO. 1
ENG NO. 2
CROSSFEED
FUEL VALVES
CLOSE
OPEN
AFT AUX
OFF
ON
FUEL
PRESS
CONTROL
AFT
MAIN
FWD
REFUEL
STATION
ON
OFF
FWD
AUX
TANK
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
33
20x17
D145-10372-SPA

GO TO NEXT PAGE

10-36 FLUSHING AIRFRAME FUEL SYSTEM (Continued) 10-36

49. Pressurize utility hydraulic system.
50. Install new elements in both engine static fuel filter. (Refer to TM 55-2840-254-23.)
51. Remove ac power from helicopter.

INSPECT

FOLLOW-ON MAINTENANCE:

Close engine access cover (Task 4-50).

Close engine work platform (Task 2-2).

END OF TASK

10-37 FLUSHING ENGINE FUEL SYSTEM 10-37

INITIAL SETUP

Applicable Configurations:
All

Tools:
- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Drain Hoses, Approximately 16 Feet Long, One End to Have 5/8-Inch Standard Hose Flared Fitting (2)
- Drain Hoses, Approximately 16 Feet Long One End to Have 3/8-Inch Standard Hose Flared Fitting (2)

Materials:
Cloths (E135)

Personnel Required:
- 67U20 Medium Helicopter Repairer (2)
- 67U30 Inspector

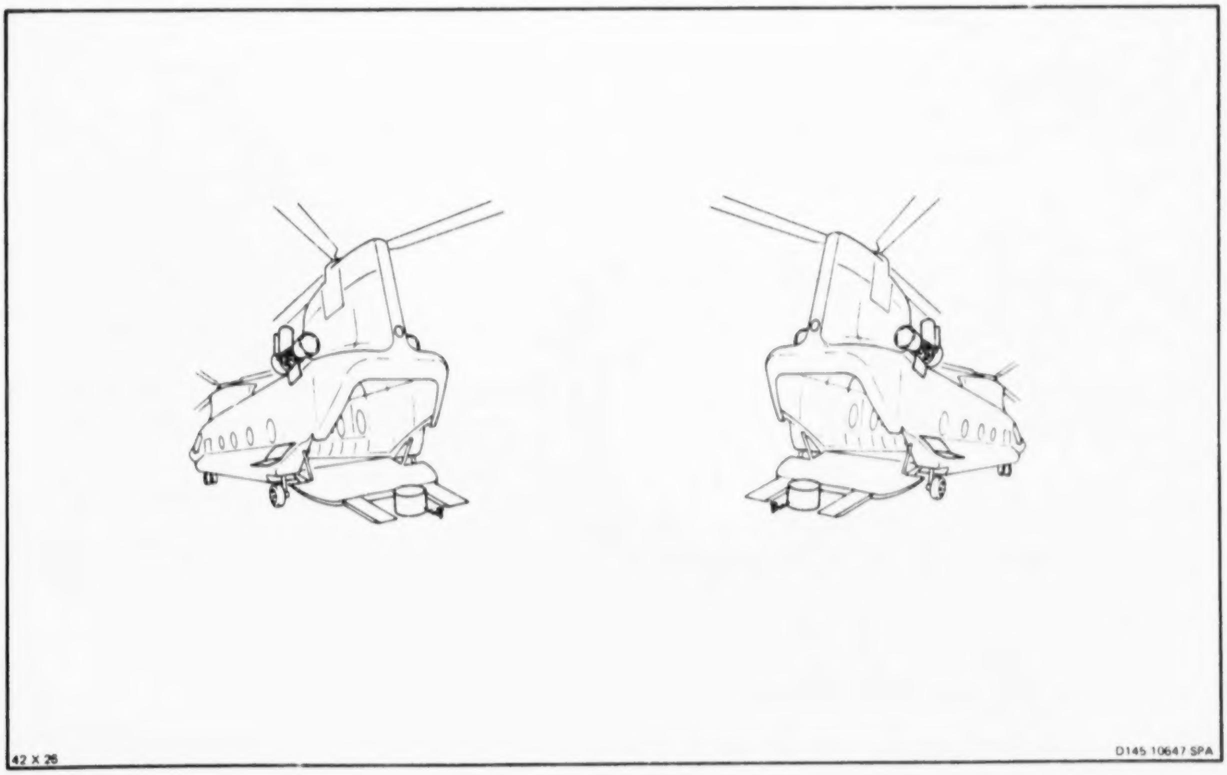
References:
- TM 55-2840-254-23
- Task 1-37
- Task 1-38

Equipment Condition:
- Battery Connected
- Electrical Power On
- Helicopter Grounded (Task 1-29)
- Helicopter Refueled (Task 1-51)
- Engine Work Platforms Open (Task 2-2)
- Engine Access Cover Open (Task 4-49)
- Grounded Container, 50 Gallon

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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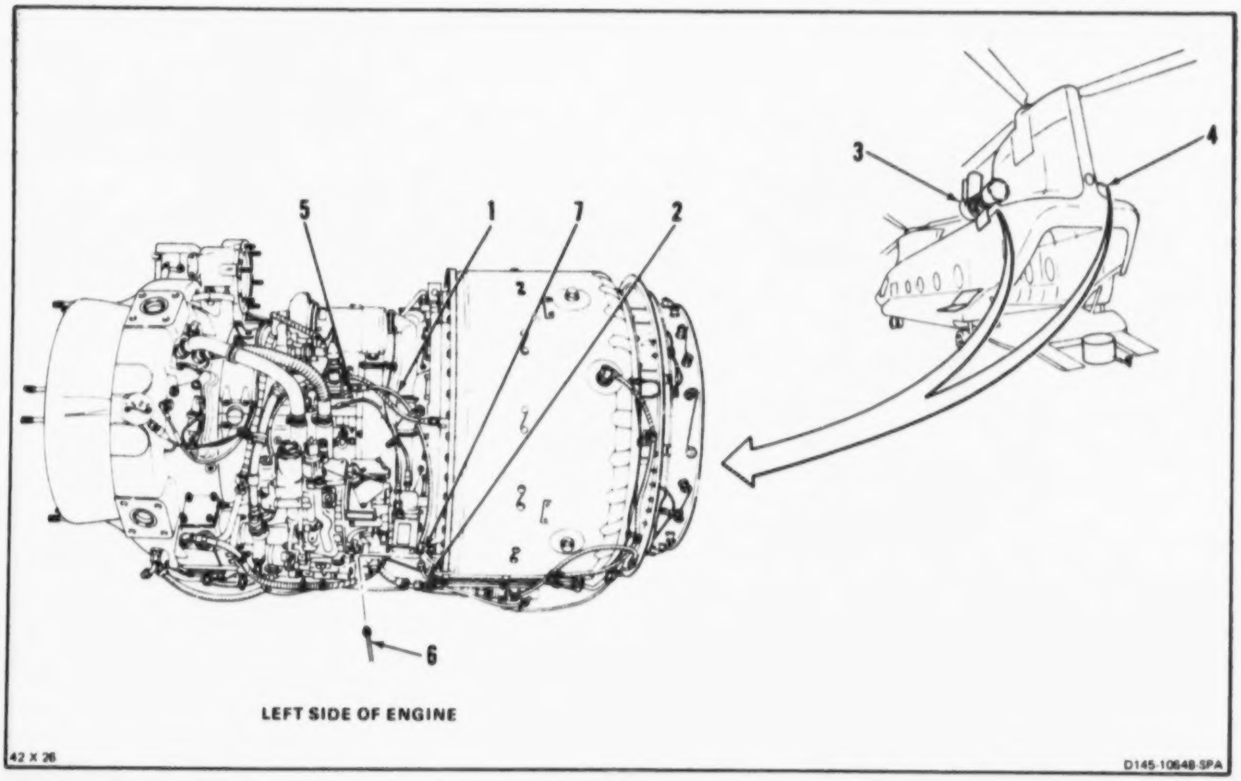
10-37 FLUSHING ENGINE FUEL SYSTEM (Continued) 10-37

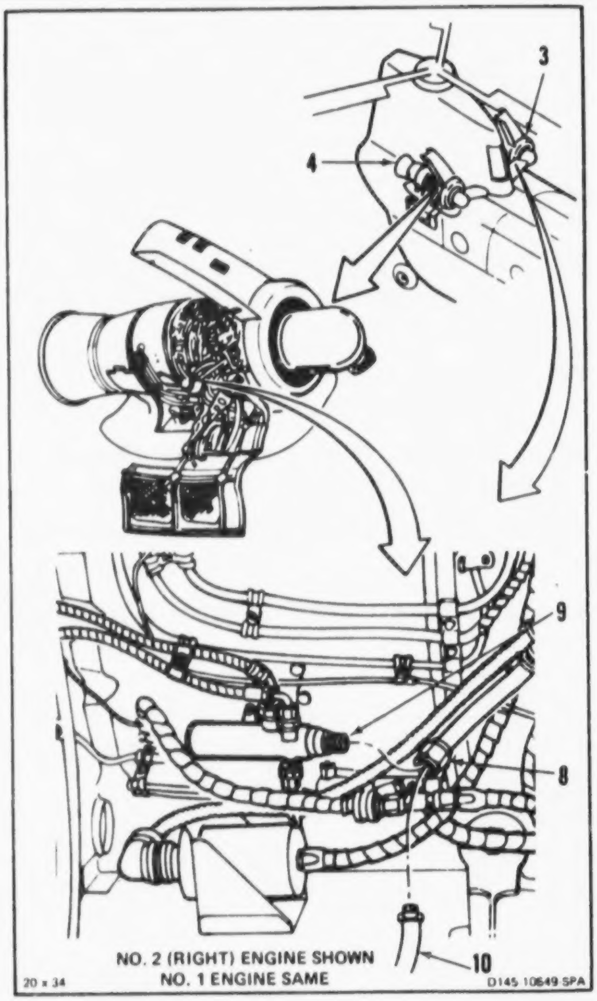
1. **Remove and clean starting fuel hose (1) and starting fuel tube (2) on each engine (3 and 4)** (TM 55-2840-254-23).
2. **Install hose (1)** on solenoid valve (5) on each engine (3 and 4) (TM 55-2840-254-23).
3. **Connect drain hose (6)** on hose nipple (7) on each engine (3 and 4).



LEFT SIDE OF ENGINE

GO TO NEXT PAGE

10-37 FLUSHING ENGINE FUEL SYSTEM (Continued) 10-37

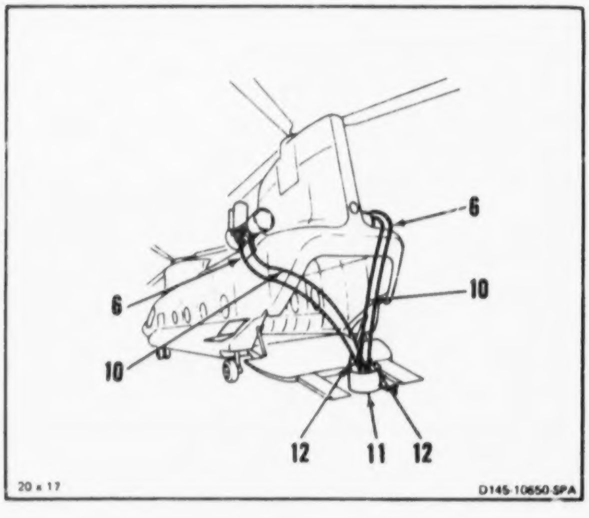

3
4
9
8
10
20 x 34
D145 10649 SPA

NO. 2 (RIGHT) ENGINE SHOWN
NO. 1 ENGINE SAME

CAUTION

Do not use tape to seal open ports. Tape adhesive is soluble in fuel and can cause contamination.

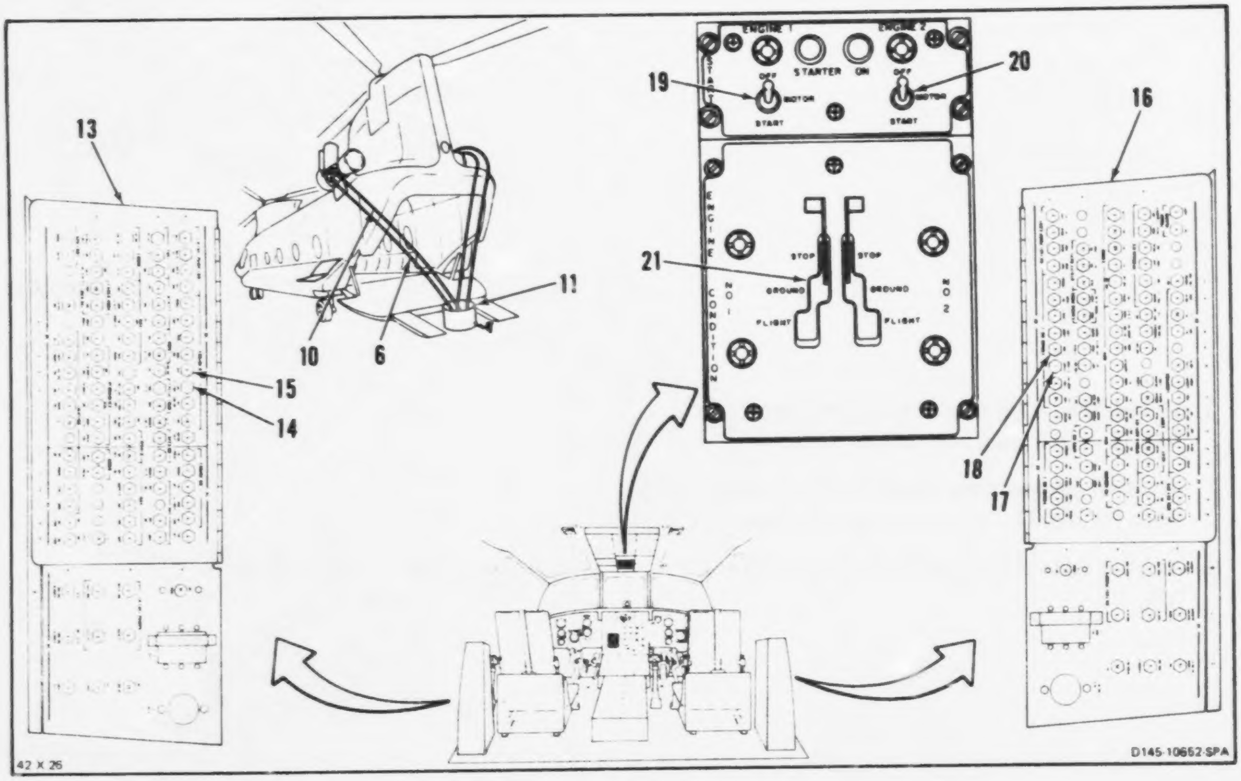
4. **Disconnect fuel hose (8)** from flow divider nipple (9) on each engine (3 and 4). Cap nipples.
5. **Connect** one **drain hose (10)** to fuel hose (8) on each engine (3 and 4).
6. **Place free end of each drain hose (6 and 10) in grounded container (11).**
7. **Attach grounding wires (12)** on each drain hose (6 and 10) to grounded container (11).
8. Apply hydraulic power to helicopter (Task 1-38).


6
10
6
10
12
11
12
20 x 17
D145-10650-SPA

GO TO NEXT PAGE

10-37 FLUSHING ENGINE FUEL SYSTEM (Continued) 10-37

9. On PDP No. 1 (13) check that START & TEMP circuit breaker (14) is closed (pushed in).
10. On PDP No. 1 (13), open ENGINE NO. 1 IGN circuit breaker (15).
11. On PDP No. 2 (16), check that following START & TEMP circuit breaker (17) is closed (pushed in).
12. On PDP No. 2 (16), open ENGINE NO. 2 IGN circuit breaker (18).
13. Check ENGINE 1 START switch (19) and ENGINE 2 START switch (20) are OFF.
14. Check ENGINE CONDITION NO. 1 lever (21) is at STOP.
15. Set ENGINE 1 START switch (19) to START.
16. Set ENGINE CONDITION NO. 1 lever (21) to GROUND.
17. Allow approximately 15 gallons of fuel to flow through drain hoses (6 and 10) into container (11).
18. Set ENGINE 1 START switch (19) to MOTOR.
19. Set ENGINE CONDITION NO. 1 lever (21) to STOP.
20. Set ENGINE 1 START switch (19) to OFF.
21. Repeat steps 14 thru 19 for ENGINE 2.


13
15
14
10
6
11
ENGINE 1
ENGINE 2
STARTER
ON
OFF
MOTOR
START
19
20
16
21
STOP
GROUND
FLIGHT
ENGINE NO 1 CONDITION NO 2
18
17
42 X 26
D145-10652-SPA

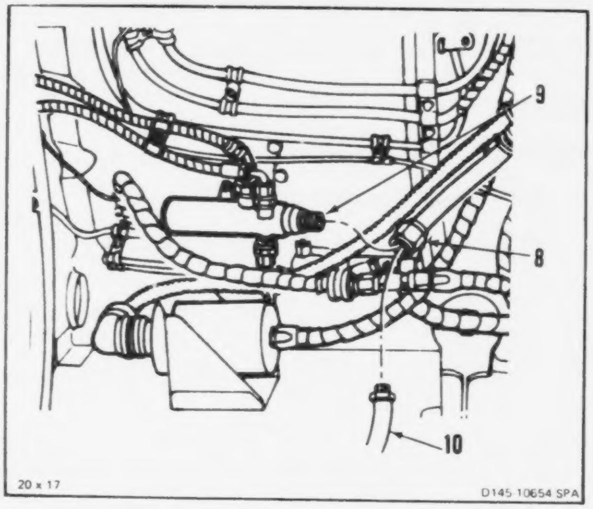
GO TO NEXT PAGE

10-37 FLUSHING ENGINE FUEL SYSTEM (Continued) 10-37

22. **Remove ac electrical power and hydraulic power** from helicopter (Task 1-37 and 1-38).

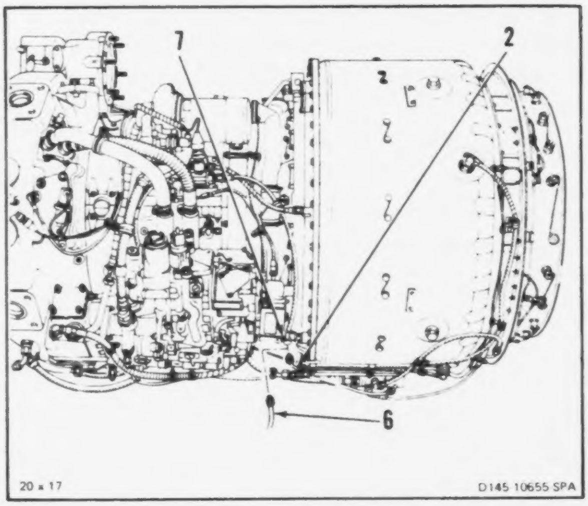
23. **Disconnect drain line (10)** from fuel hose (8) on each engine.

24. Remove cap from valve nipple (9). **Install fuel hose (8)** on nipple on each engine.


9
8
10
20 x 17
D145 10654 SPA

25. **Disconnect drain line (6)** from nipple (7) on each engine.

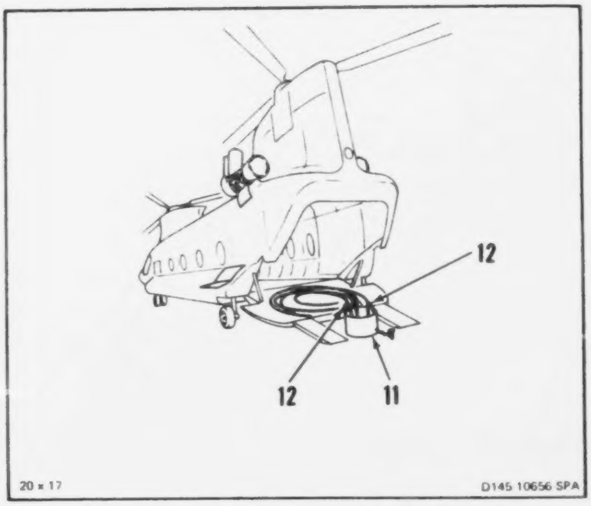
26. **Install starting fuel tube (2)** on each engine (TM 55-2840-254-23)


7
2
6
20 x 17
D145 10655 SPA

27. **Disconnect four grounding wires (12)** from grounded container (11).

28. **Remove clean, and install fuel control unit filters on each engine** (TM 55-2840-254-23).

29. **Remove clean, and install element of in-line fuel filter on each engine** (TM 55-2840-254-23).


12
12
11
20 x 17
D145 10656 SPA

GO TO NEXT PAGE

30. Clean up any spilled fuel. Use cloths (E135).

INSPECT

FOLLOW-ON MAINTENANCE:

Close engine access cover (Task 4-50).

Close engine work platform (Task 2-2).

END OF TASK

10-38 REFITTING OF FITTINGS, HOSES AND TUBING — GENERAL INFORMATION 10-38

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Parts:
As Required

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

CAUTION

Do not allow fittings at access doors to turn when connecting or disconnecting fuel hoses. Otherwise, access door fittings can fail and cause fuel or vent blockage.

1. **Cap or plug open lines and fittings** to prevent foreign matter entering the fuel system.
2. **Replace standard parts with like,** serviceable parts as required.
3. **Use new gaskets or packings** when reinstalling fittings.

NOTE

Preformed copper seals are only used in the aft fuselage area, between sealing faces of hoses, tubes or fittings when both faces are steel. Tag locations of copper seals during removal to aid in correct installation.

4. **Install new preformed copper seals VSF 1015 C 16B in hose connections. Torque connectors to 750-1500 inch-pounds.**
5. After installation, check the connections of replaced parts for leaks.
6. Where tubing emerges through outer skin of fuselage, replace watertight seal as required.
7. Repair, fabricate, and test fuel lines as directed in TM 55-1500-204-25/1.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

10-39 REMOVE FUEL TANK DRAIN VALVE

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Socket, 1 Inch

Materials:
Cloths (E135)

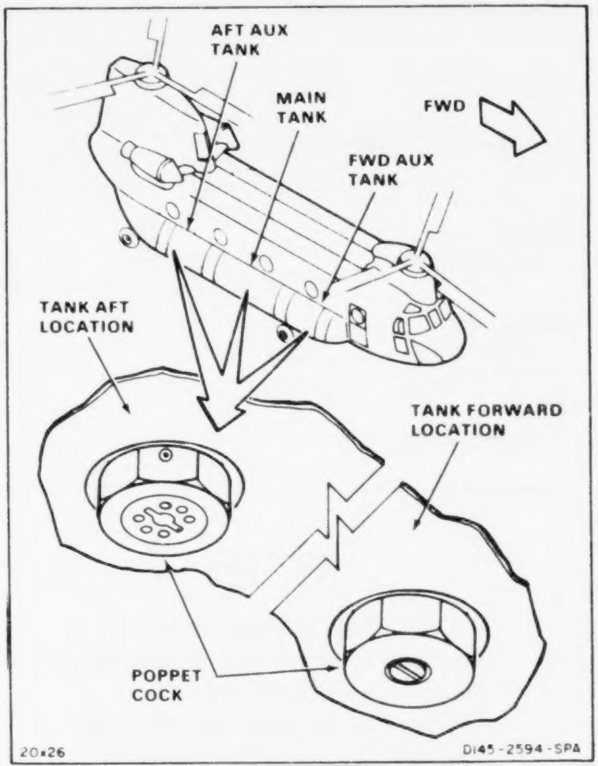
Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Tank Defueled Aft Aux Main or Fwd Aux, as Required (Task 10-34 or 10-35)
Grounded Container, 14 Quart

General Safety Instructions:

WARNING

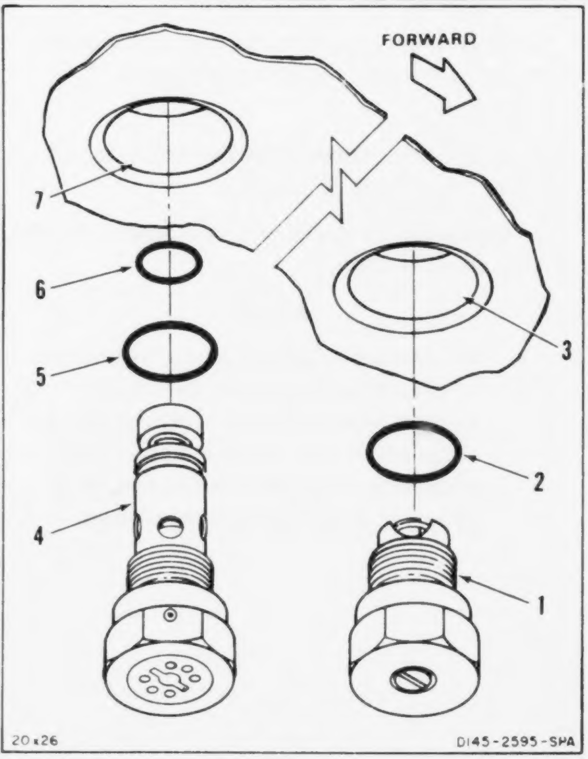
All regulations and instructions for handling fuels shall be strictly observed.



NOTE

- There are two drain valves on each tank, one at forward end and one at aft end. Procedure can be used to remove any drain valve
- Forward and aft drain valves on each tank do not look alike.

1. For forward location in tank, **remove drain valve (1)** and packing (2). Install plug in port (3). Use container for spilled fuel.
2. For aft location in tank, **remove drain valve (4)** and packings (5 and 6). Install plug in port (7). Use container for spilled fuel.
3. Clean up spilled fuel. Use cloths (E135).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-40 INSTALL FUEL TANK DRAIN VALVE (Continued) 10-40

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Socket, 1 Inch

Materials:

None

Parts:

Packings

Personnel Required:

Medium Helicopter Repairer

Inspector

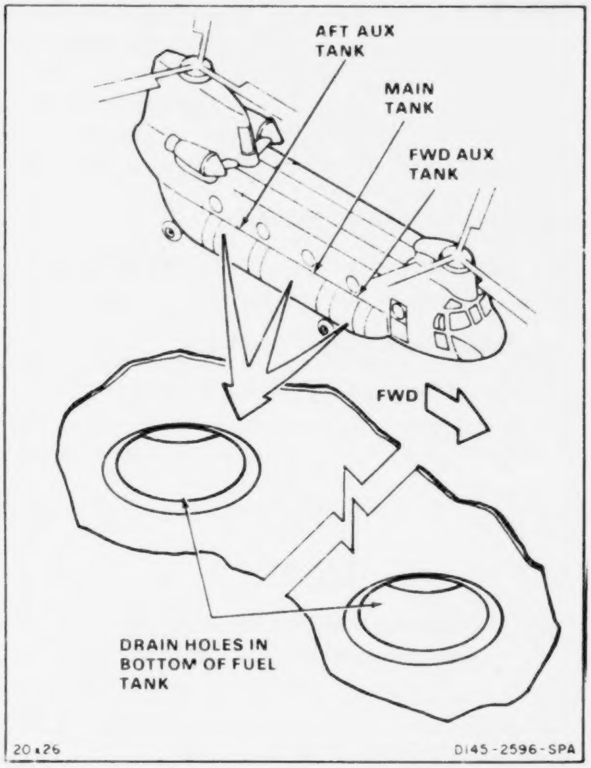
References:

TM 55-1520-240-23P

General Safety Instructions:

WARNING

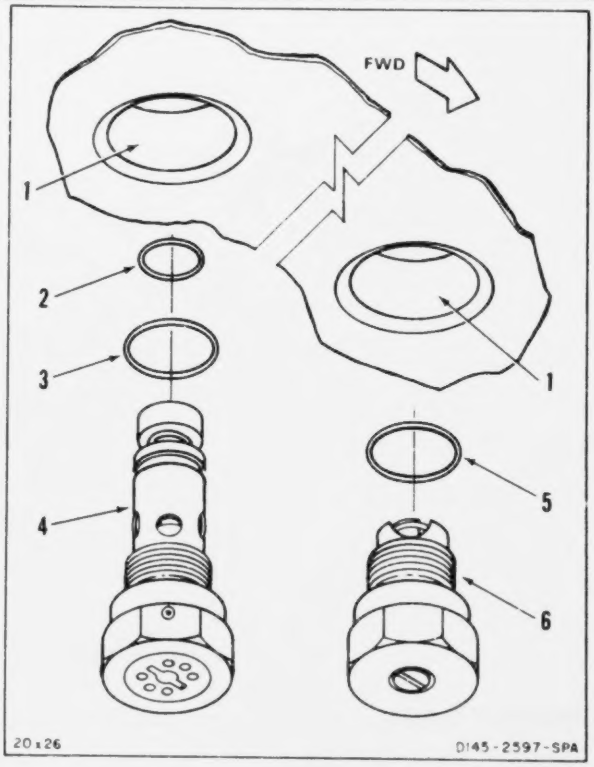
All regulations and instructions for handling fuels shall be strictly observed.


AFT AUX TANK
MAIN TANK
FWD AUX TANK
FWD
DRAIN HOLES IN BOTTOM OF FUEL TANK
20x26
D145-2596-SPA

NOTE

- There are two drain valves on each tank, one at forward end and one at aft end. Procedure can be used to install any drain valve.
- Forward and aft drain valves do not look alike.

1. Remove plugs from tank drain holes (1) as required.
2. For aft location in tank, install packings (2 and 3) on drain cock (4). **Install drain valve in aft drain hole (1).**
3. For forward location in tank, install packing (5) on drain cock (6). **Install drain valve in forward drain hole (1).**


FWD
1
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20x26
D145-2597-SPA

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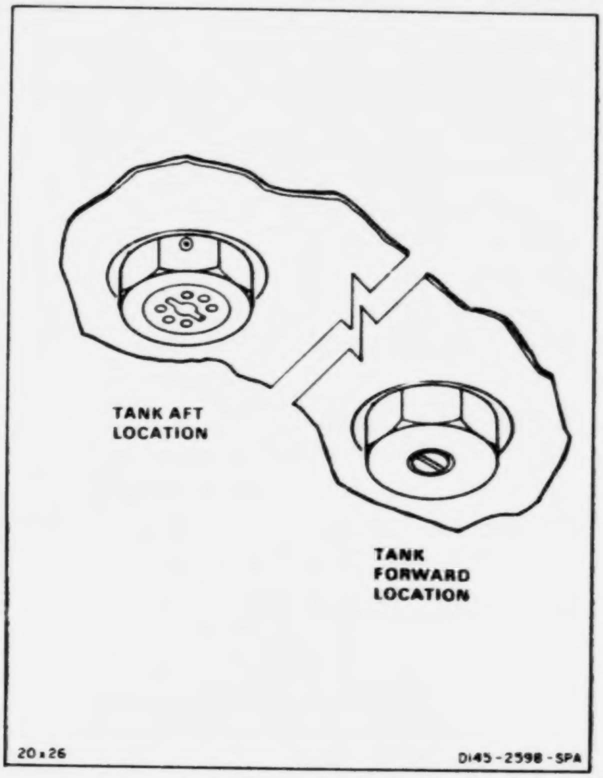
10-40 INSTALL FUEL TANK DRAIN VALVE (Continued) 10-40

INSPECT


TANK AFT
LOCATION
TANK
FORWARD
LOCATION
20.26
D145-2598-SPA

FOLLOW-ON MAINTENANCE:

Test fuel tanks (Task 10-22, 10-27, or 10-32).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

END OF TASK

10-41 REMOVE MAIN TANK FUEL LINES AND ELECTRICAL WIRING 10-41

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Barrier Material (E80)
Tape (E388)
Paper Tags (E264)

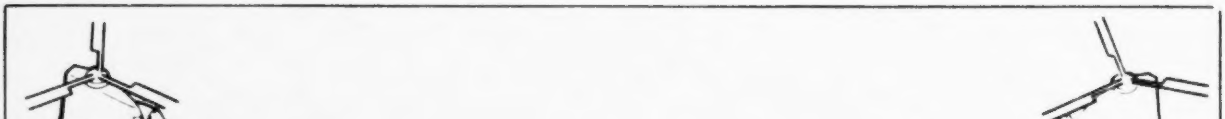
Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Affected Side of Helicopter Defueled (Task 10-34 or 10-35)
Forward Auxiliary Tank Lowered on Hinges (Task 10-23)
Main Fuel Tank Forward Boost Pump Removed (Task 10-51)
Main Fuel Tank Aft Boost Pump Removed (Task 10-53)
Main Fuel Tank - Fuel Quantity Transmitters Removed (Task 8-81)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.



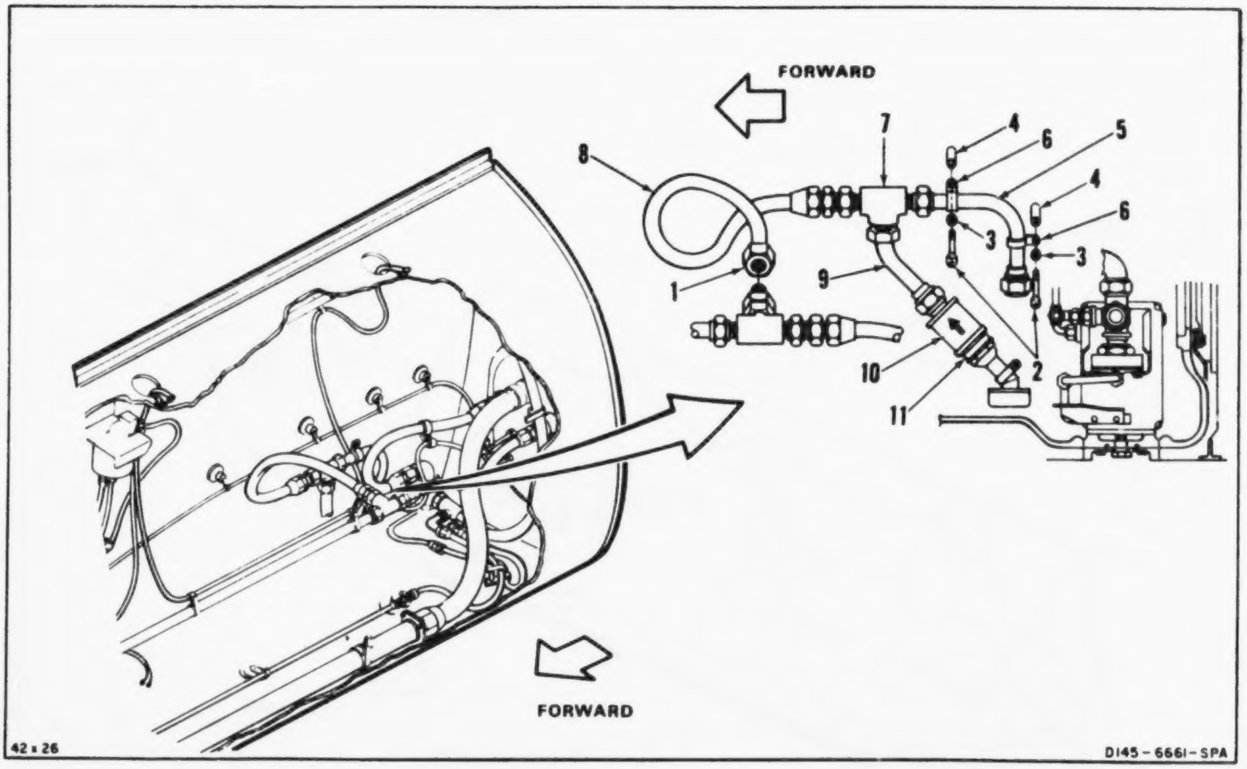
GO TO NEXT PAGE

10-41 REMOVE MAIN TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-41

NOTE

Procedure is same to remove No. 1 or No. 2 main tank fuel lines and electrical wiring. No. 1 (left) main tank is shown here.

1. **Disconnect hose connector (1).**
2. **Remove two screws (2),** washers (3), and spacers (4).
3. **Tag and remove tube (5), two clamps (6), tee (7), hose (8), tube (9), suction valve assembly (10), and cable clip (11) as unit.** Plug tube and cap hose.


FORWARD
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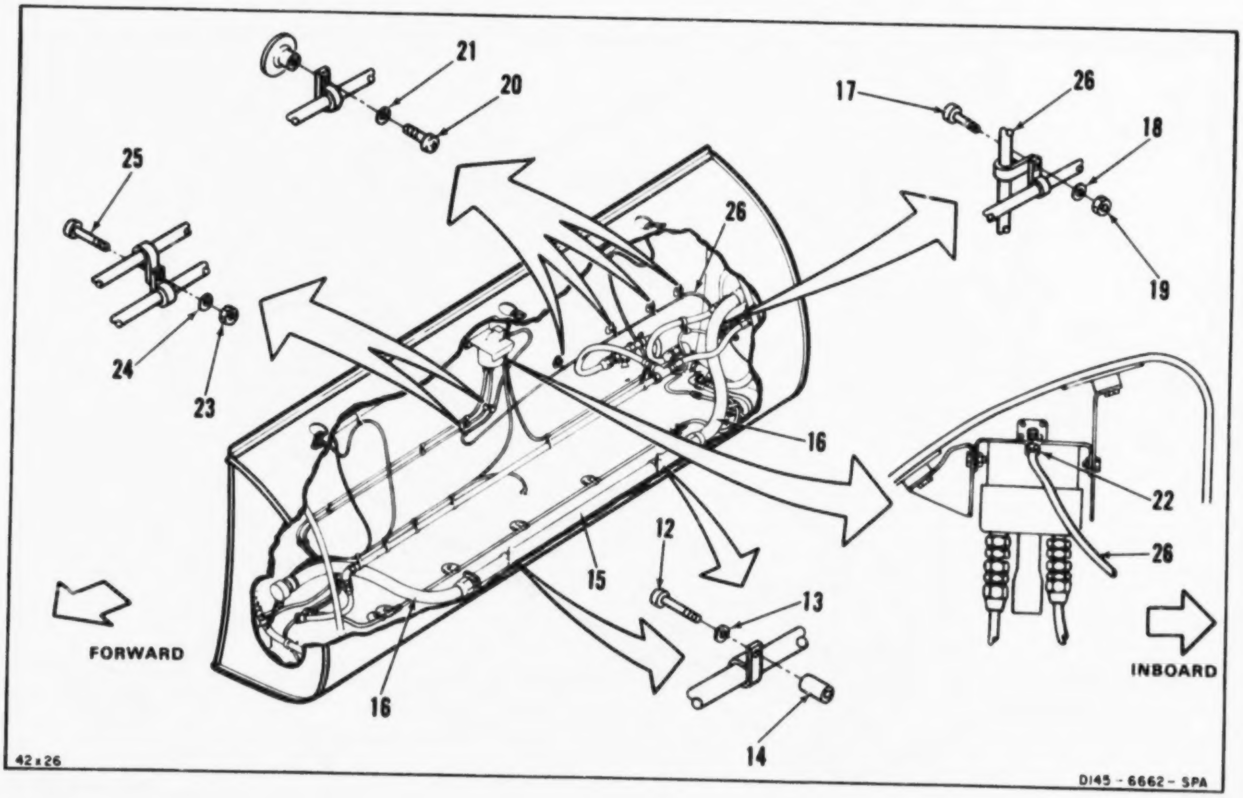
FORWARD
42 x 26
D145-6661-SPA

GO TO NEXT PAGE

10-41 REMOVE MAIN TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-41

4. **Remove two screws (12),** washers (13), and spacers (14).
5. Tag and **remove tube (15) and two hoses (16)** as a unit. Plug hoses.
6. **Remove screw (17),** washer (18), and nut (19).
7. **Remove four screws (20)** and washers (21).
8. **Disconnect electrical connector (22).**
9. **Remove** nut (23), washer (24), and **screw (25).**
10. Tag and **remove electrical cable (26).**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FORWARD
INBOARD
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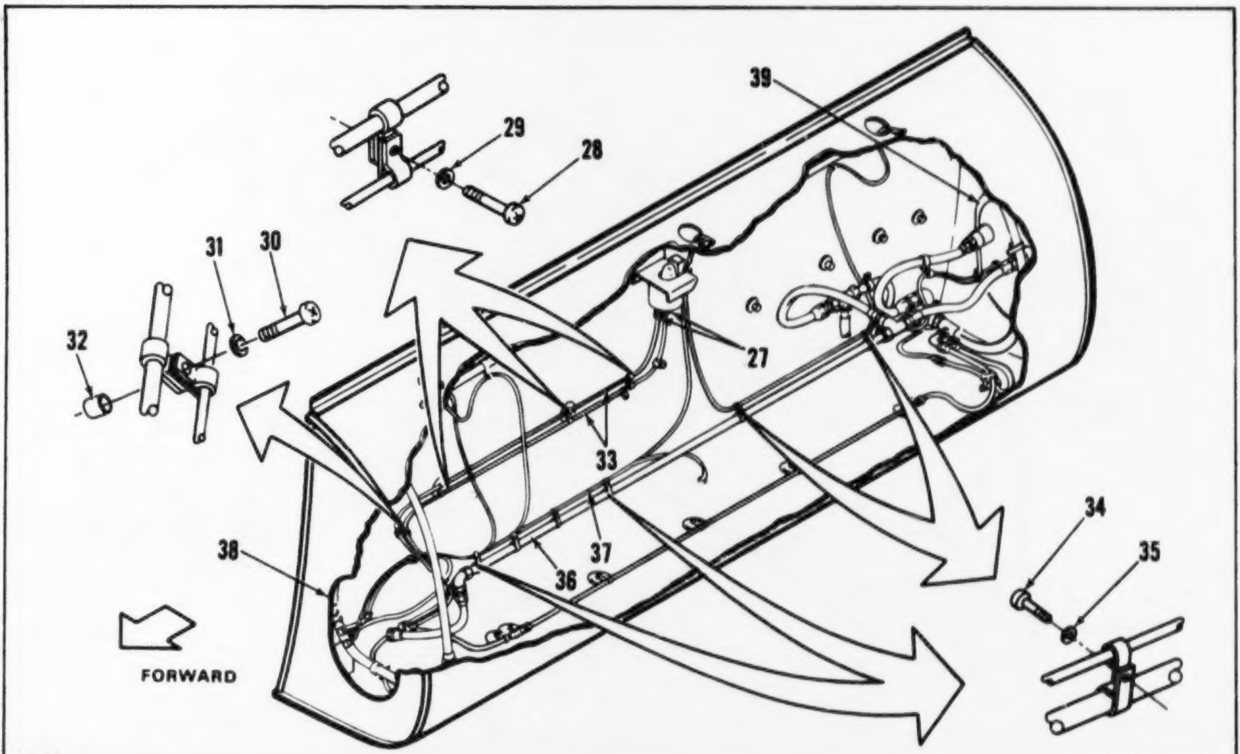
42 x 26
DI45 - 6662 - SPA

GO TO NEXT PAGE

10-41 REMOVE MAIN TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-41

11. **Disconnect two hose connectors (27).**
12. **Remove three screws (28)** and washers (29).
13. Remove screw (30), washer (31), and spacer (32).
14. Tag and **remove two hoses (33) as a unit.**
15. **Remove four screws (34)** and washers (35).
16. Tag and **remove tube (36) and electrical wires (37)** as a unit.
17. Cover forward access hole (38) and aft access hole (39). Use barrier material (E80) and tape (E388).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FORWARD
42 x 26
D145-6663-SPA

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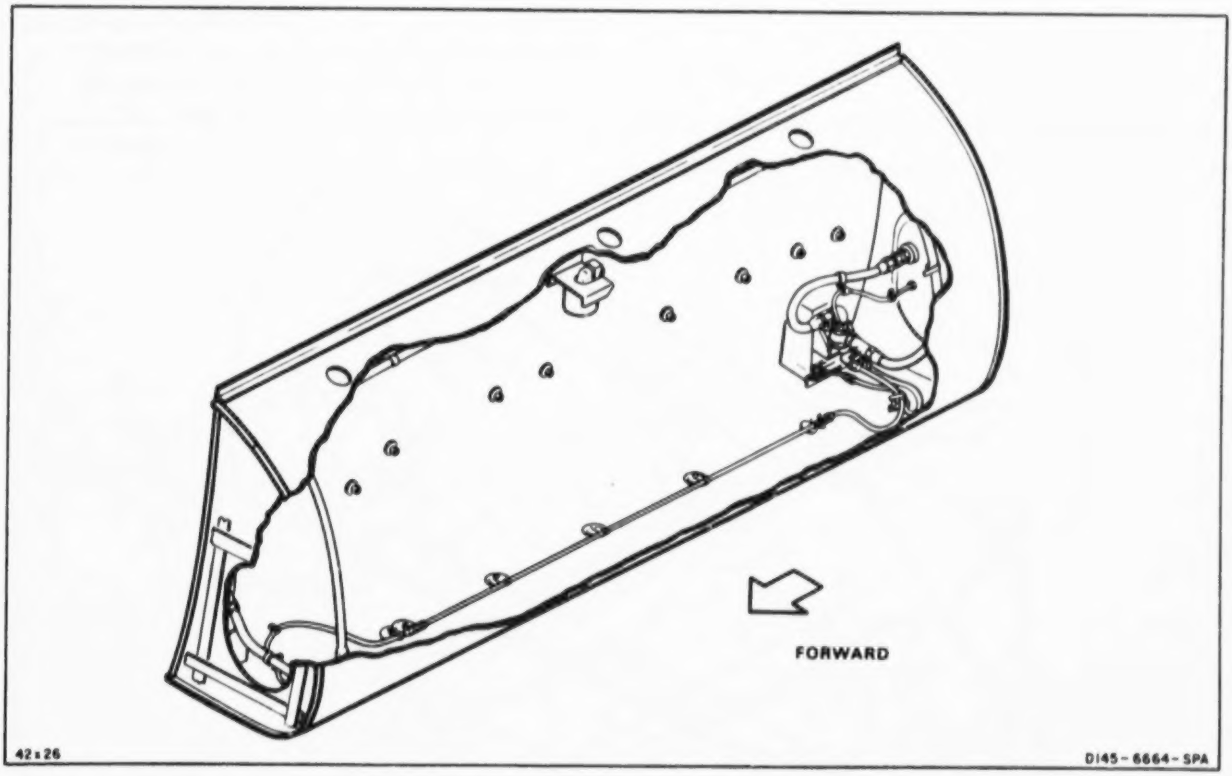
10-41 REMOVE MAIN TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-41

FOLLOW-ON MAINTENANCE:

None


FORWARD
42x26
D145-6664-SPA

END OF TASK

10-42 INSTALL MAIN TANK FUEL LINES AND ELECTRICAL WIRING 10-42

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Lockwire (E233)
Dry Cleaning Solvent (E162)
Cloths (E135)
Gloves (E186)

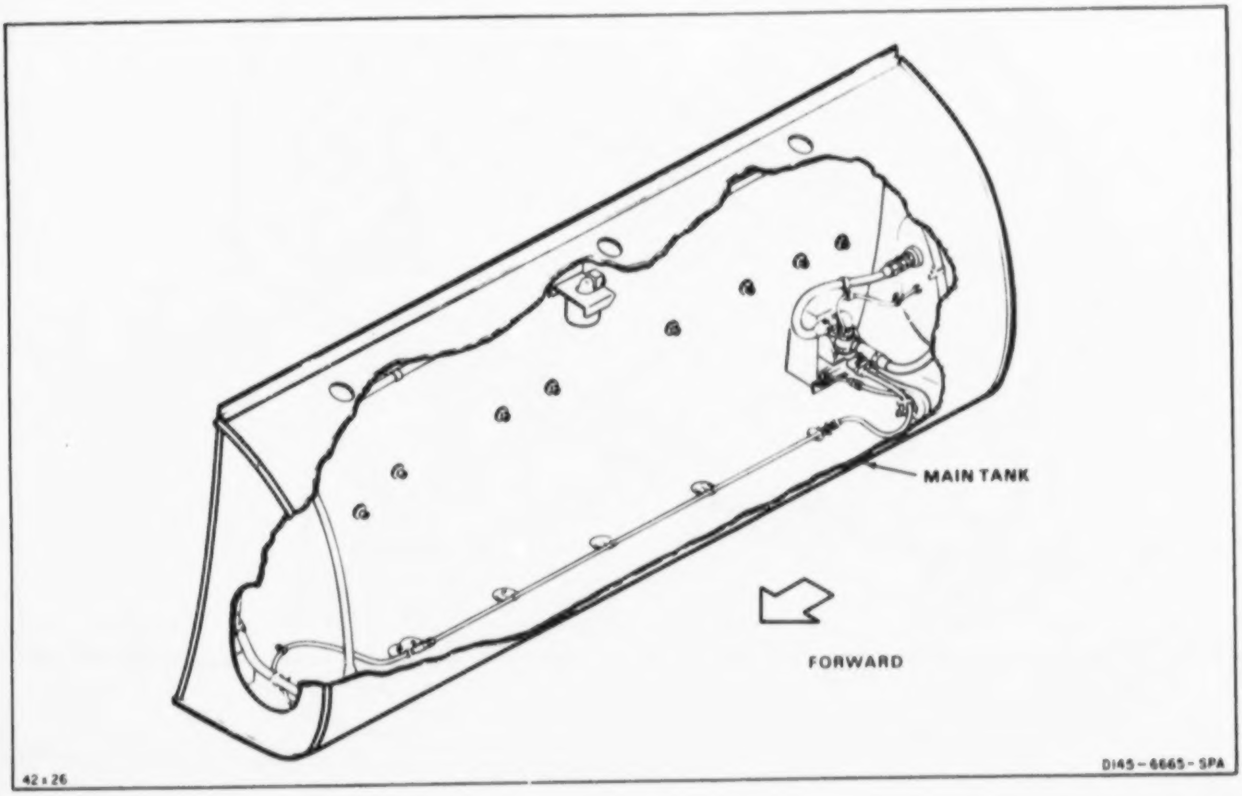
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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10-42 INSTALL MAIN TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-42

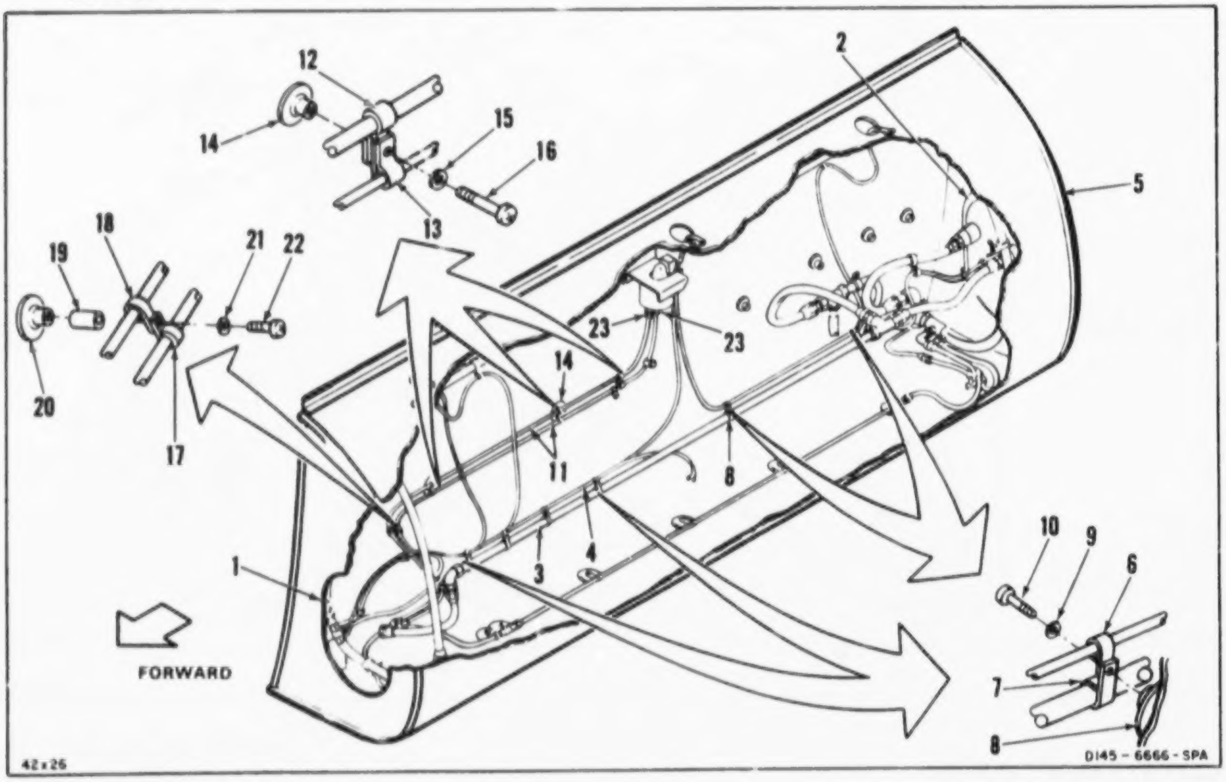
NOTE

Procedure is same to install No. 1 or No. 2 main tank fuel lines and electrical wiring. No. 1 (left) main

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Remove barrier material and tape from forward access hole (1) and aft access hole (2). Clean any tape residue from face of tank. Use dry cleaning solvent (E162) and cloths (E135). Use goggles for eyes. Wear gloves (E186).
2. Remove tags and **position tube (3) and attached electrical wires (4)** in fuel tank (5). **Position four electrical wire clamps (6) and four tube clamps (7)** against four tank attachment bosses (8).
3. **Install four washers (9)** and **screws (10).**
4. Remove tags and **position two hoses (11)** in fuel tank (5). **Position three hose clamps (12) and three hose clamps (13)** against three tank attachment bosses (14).
5. **Install three washers (15)** and **screws (16).**
6. Position two hose clamps (17 and 18) and spacer (19) against tank attachment boss (20).
7. Install washer (21) and screw (22).
8. **Connect two hose connectors (23).**



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10-42 INSTALL MAIN TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-42

9. **Position electrical cable (24)** in fuel tank (5). Remove tags.

10. **Position two cable clamps (25) and two hose clamps (26).**

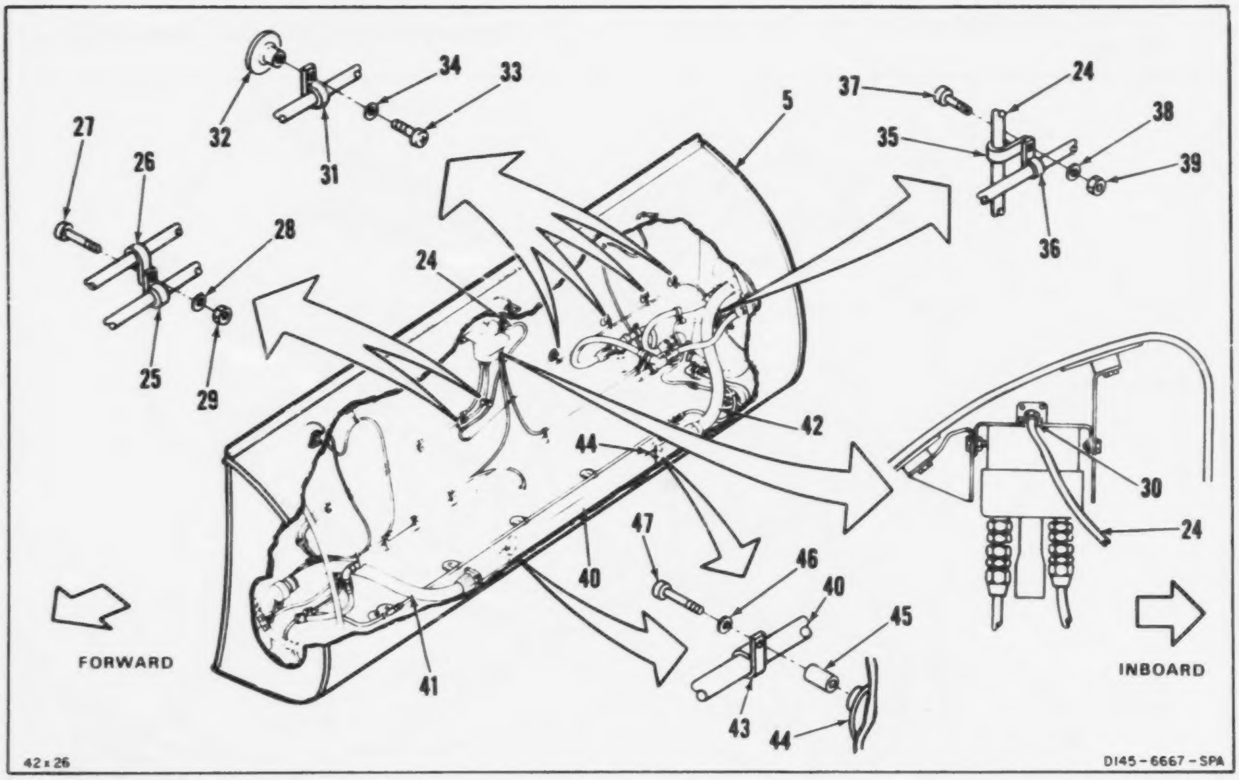
11. **Install two screws (27),** washers (28), and nuts (29).

12. **Connect electrical connector (30).**

13. **Position cable clamps (31)** at four tank attachment points (32). **Install four screws (33)** and washers (34).

14. **Position cable clamps (35 and 36). Install screw (37), washer (38), and nut (39).**

15. Remove tags and **position tube (40) and two hoses (41 and 42). Position tube clamps (43)** at two tank attachment points (44). **Install two spacers (45),** washers (46), **and screws (47).**


27
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FORWARD
41
INBOARD
43
44
42x26
D145-6667-SPA

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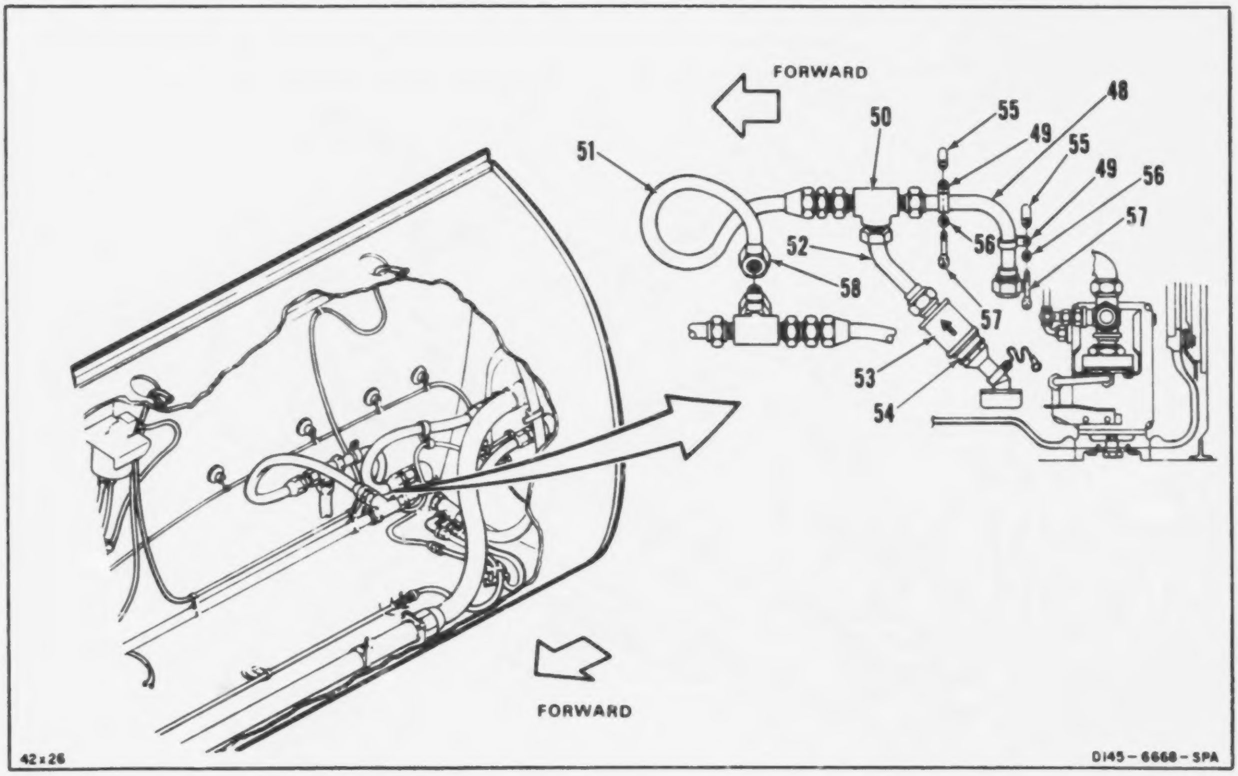
10-42 INSTALL MAIN TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-42

16. Remove tags and **position tube (48), two clamps (49), tee (50), hose (51), tube (52), suction valve assembly (53), and cable clip (54)** as a unit.
17. **Install two** spacers (55), washers (56), and **screws (57).**
18. **Connect hose connector (58).**

INSPECT


FORWARD
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FORWARD
42x26
D145-6668-SPA

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10-42 INSTALL MAIN TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-42

FOLLOW-ON MAINTENANCE:

Install main fuel tank-fuel quantity transmitters (Task 8-82).

Install main fuel tank aft boost pump (Task 10-54).

Install main fuel tank forward boost pump (Task 10-52).

Raise and install forward auxiliary fuel tank (Task 10-26).

Perform vent system pressure test (Task 10-117) on affected tank.

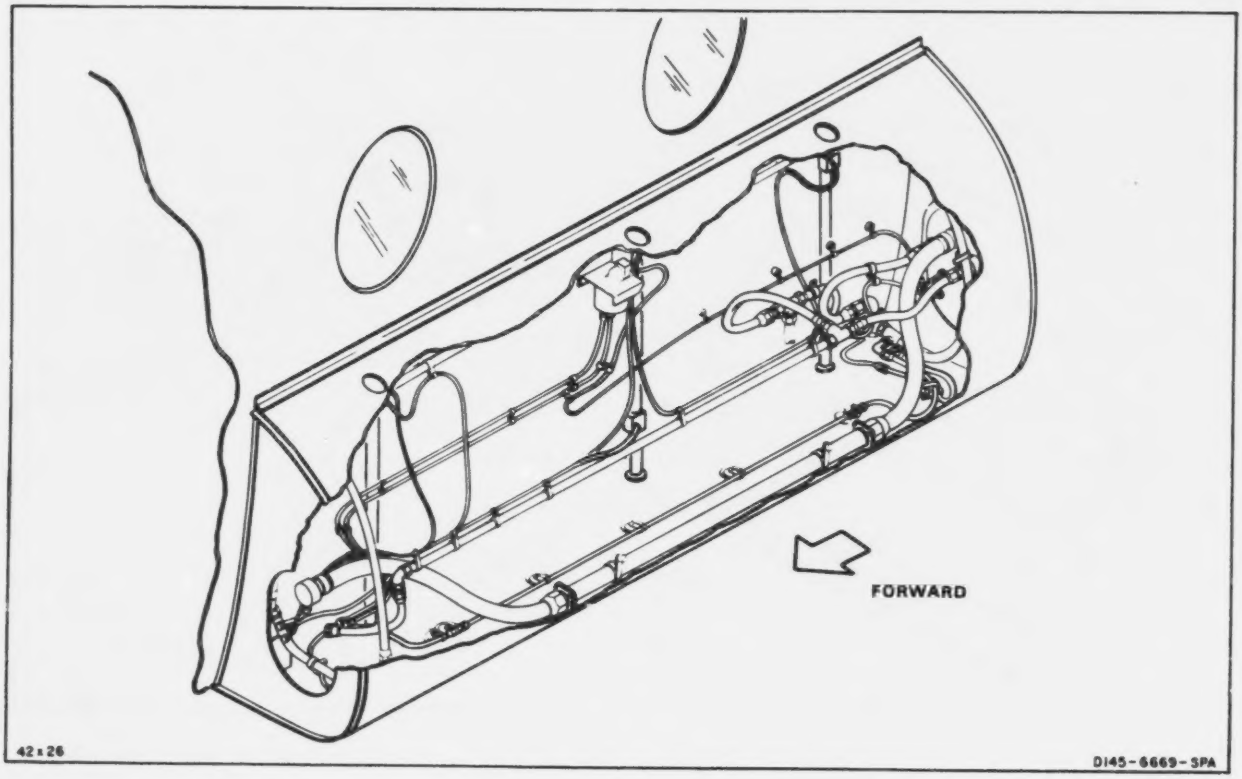
Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-4).



END OF TASK

10-43 REMOVE MAIN FUEL TANK VENT ASSEMBLY 10-43

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Barrier Material (E80)
Tape (E388)
Paper Tags (E264)

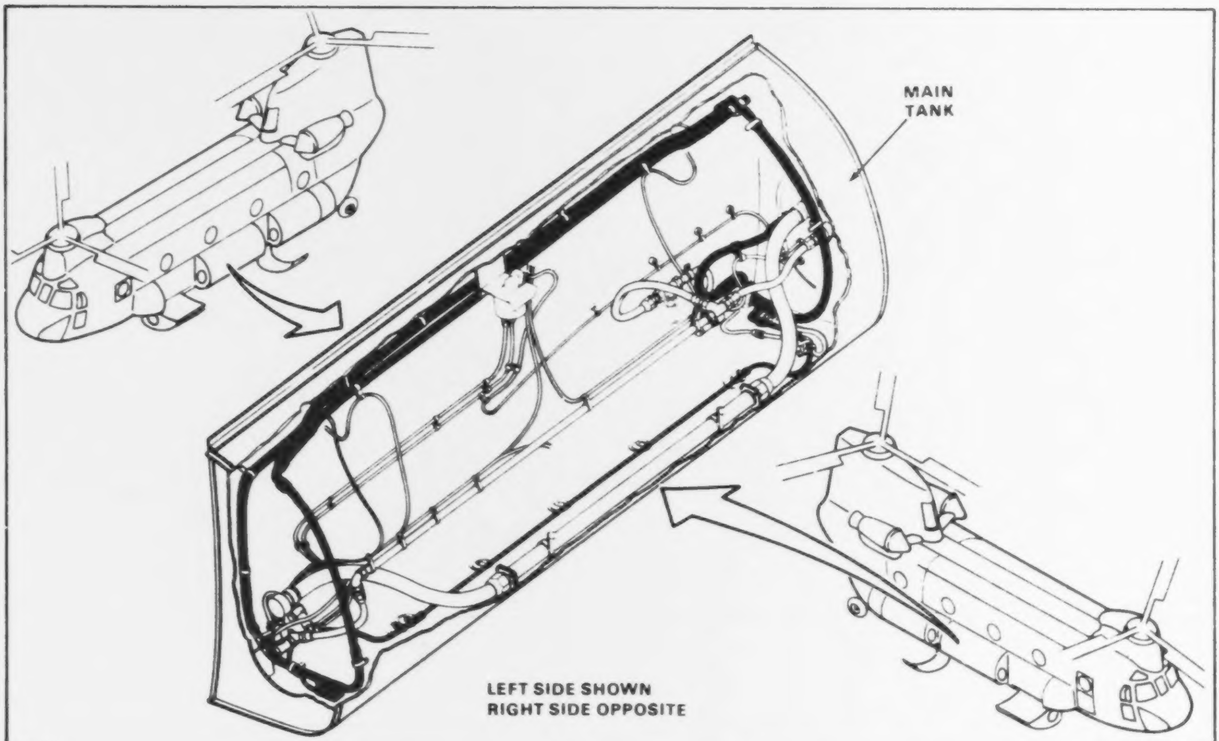
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Affected Side of Helicopter Defueled (Task 10-34 or 10-35)
Forward Auxiliary Tank Lowered on Hinges (Task 10-23)
Main Fuel Tank Forward Access Door Removed (Task 10-51)
Main Fuel Tank Aft Access Door Removed (Task 10-53)
Main Fuel Tank - Fuel Quantity Transmitters Removed (Task 8-81)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.



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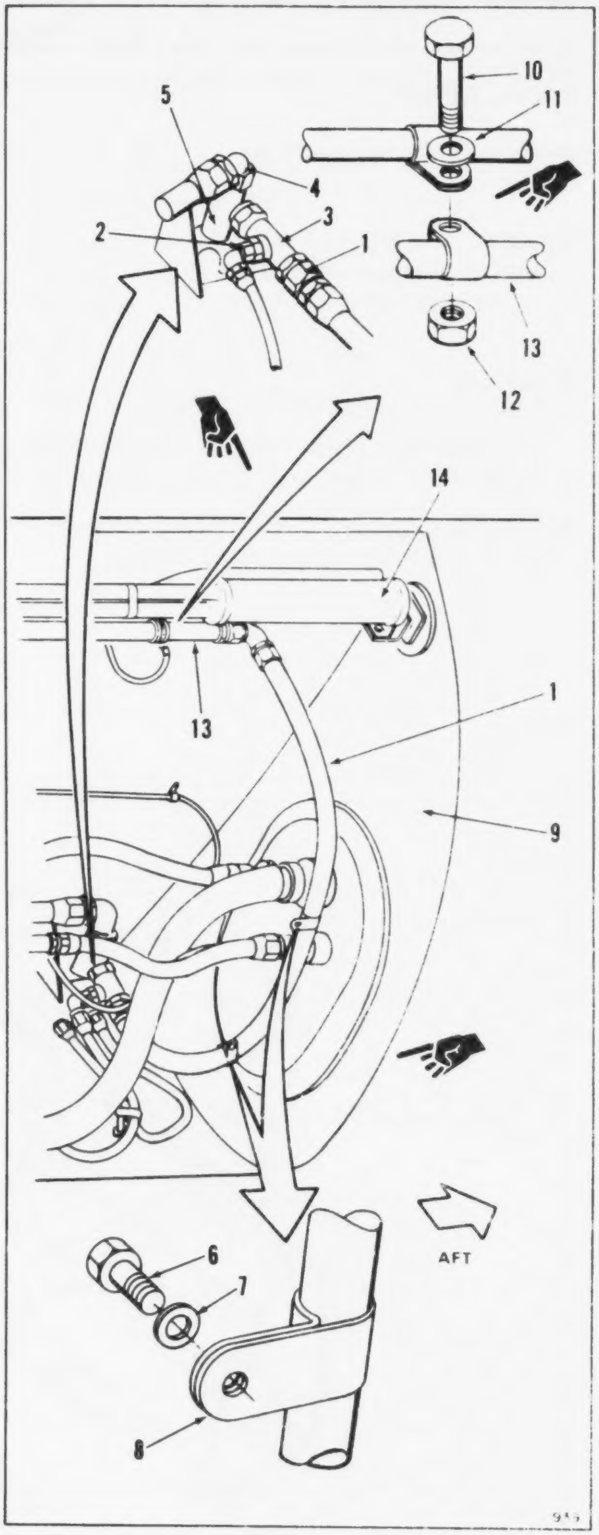
10-43 REMOVE MAIN FUEL TANK VENT ASSEMBLY (Continued) 10-43

NOTE

Procedure is same to remove No. 1 or No. 2 main fuel tank vent assembly. Removal of No. 1 (left) vent assembly is shown here.

1. **Disconnect hoses (1 and 2) from tee (3).** Plug hoses and cap tee.
2. **Disconnect hose (4)** from drain valve (5). **Tag and remove hose.** Plug hose and cap valve.
3. **Remove two screws (6)** and washers (7) securing clamps (8) to tank cell (9).
4. **Remove screw (10)**, washer (11), and nut (12) only if vent tube (13) will be removed from vent (14).
5. **Disconnect hose (1) from vent tube (13).** Tag and **remove hose.** Plug hose and cap tube.

5.1. If required, remove and plug tube (13).



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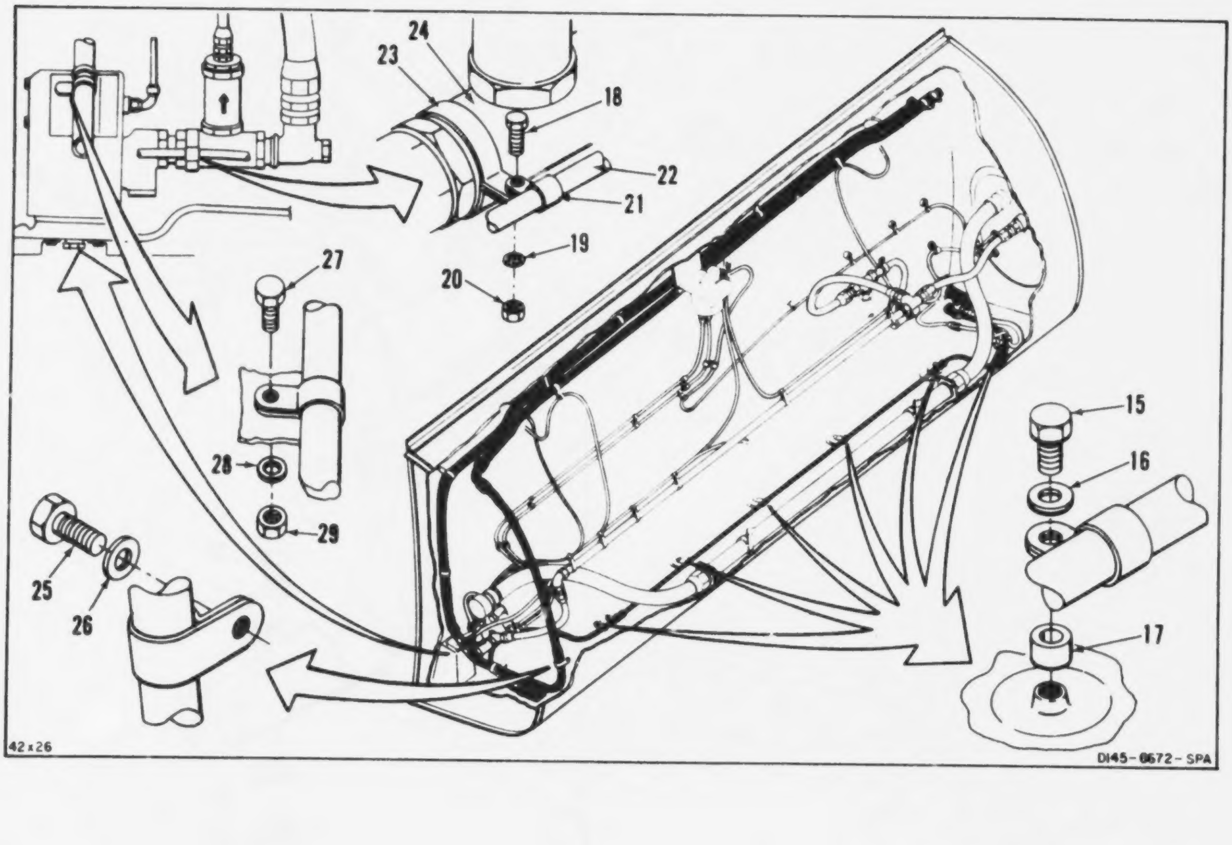
10-43 REMOVE MAIN FUEL TANK VENT ASSEMBLY (Continued) 10-43

6. **Remove six bolts (15),** washers (16), and spacers (17).
7. **Remove bolt (18),** washer (19), and nut (20) securing clamp (21) on hose (22) to clamp (23) on tee (24).
8. **Remove bolt (25)** and washer (26).
9. **Remove bolt (27), washer (28),** and nut (29).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42x26
DI45-6672-SPA

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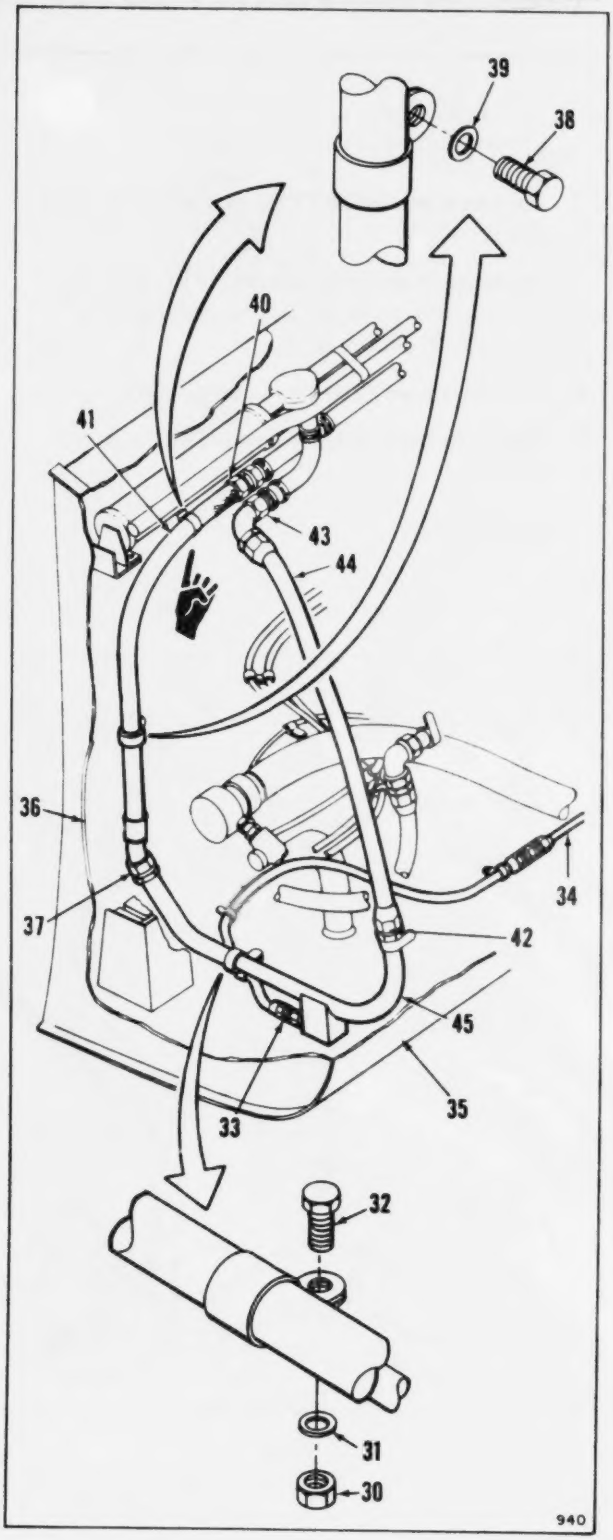
10-43 REMOVE MAIN FUEL TANK VENT ASSEMBLY (Continued) 10-43

10. **Remove** nut (30), washer (31), and **screw (32).**
11. **Disconnect hose (33).** Plug hose.
12. Tag and **remove tube (34) and hose assembly (33)** from fuel tank (35) through forward access (36).
13. **Disconnect hose connector (37).**
14. **Remove two screws (38)** and washers (39).
15. **Disconnect hose connector (40).** Tag, **remove**, and plug **hose (41).**
16. **Disconnect hose connectors (42 and 43).** Tag and **remove hose (44) and tube (45).** Plug and cap hose and tube.



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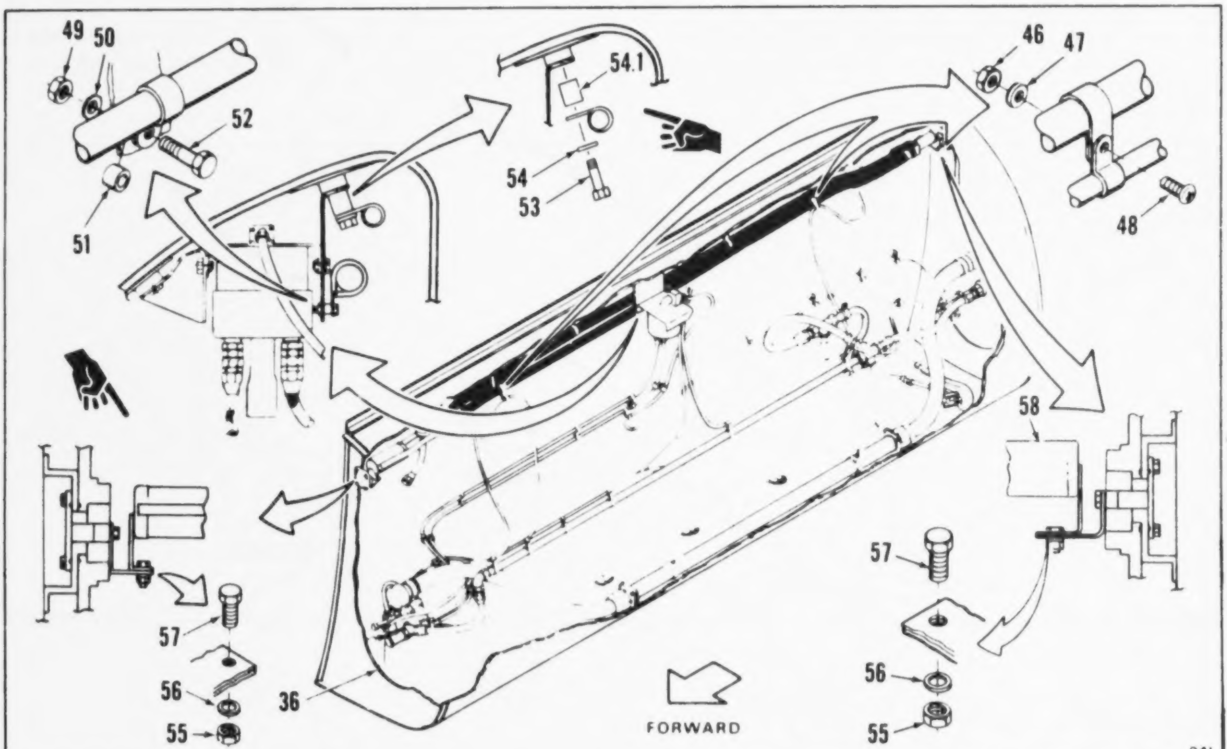
10-43 REMOVE MAIN FUEL TANK VENT ASSEMBLY (Continued) 10-43

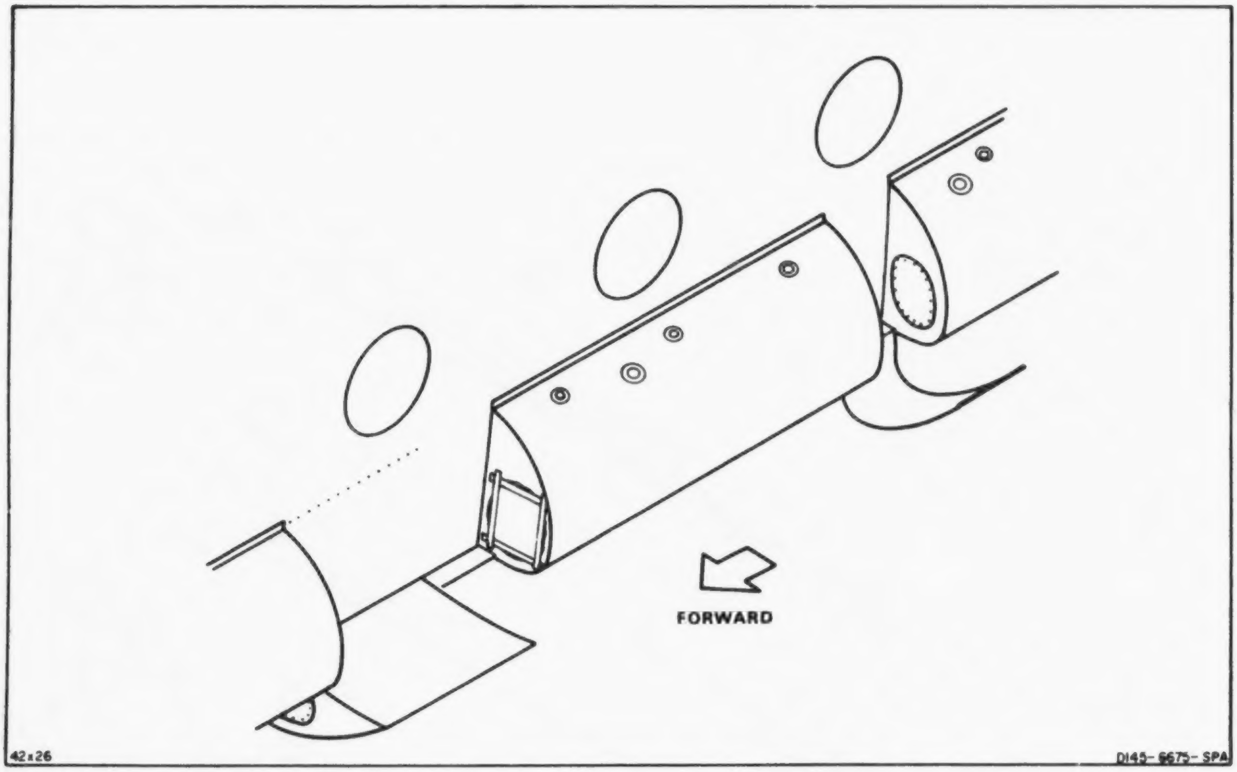
17. **Remove** two nuts (46), washers (47), and **screws (48)**.
18. **Remove** nut (49), washer (50), spacer tube (51), **and screw (52).**
19. **Remove screw (53)** washer (54), and spacer (54.1).
20. **Remove** four nuts (55), washers (56), and **screws (57).** Two at forward end, and two at aft end.
21. **Remove vent assembly (58)** from fuel tank, through forward access (36). Plug and cap all openings in vent assembly.
22. Cover forward access hole (36) and aft access hole (37). Use barrier material (E80) and tape (E388).



10-43 REMOVE MAIN FUEL TANK VENT ASSEMBLY (Continued) 10-43

FOLLOW-ON MAINTENANCE:

None


FORWARD
42x26
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END OF TASK

10-44 INSTALL MAIN FUEL TANK VENT ASSEMBLY 10-44

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloths (E135)
Dry Cleaning Solvent (E162)
Gloves (E186)

Personnel Required:
67U10 Medium Helicopters Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

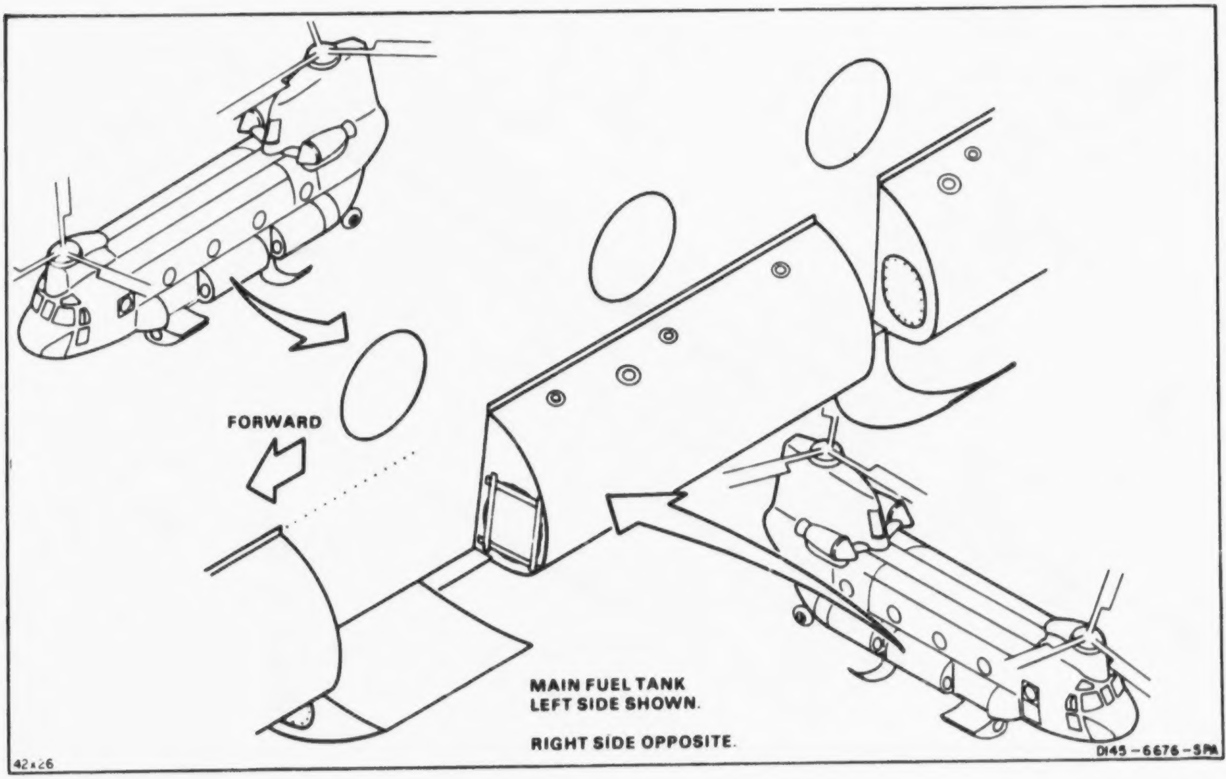
General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.

CAUTION

Do not pucture or scratch lining of fuel cell. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel cell and flush fuel system.



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10-44 INSTALL MAIN FUEL TANK VENT ASSEMBLY (Continued) 10-44

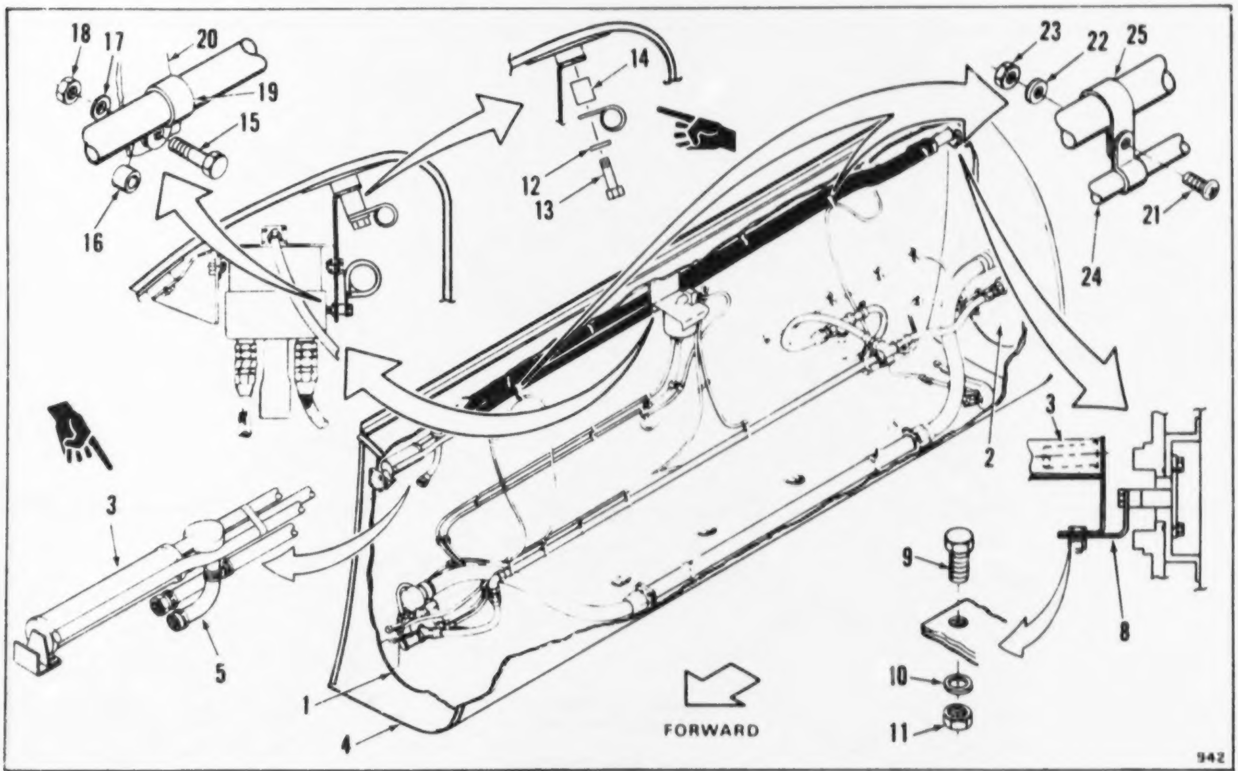
WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

NOTE

Procedure is same to install No. 1 and No. 2 main fuel tank vent assembly. Installation of No. 1 (left) main fuel tank vent assembly is shown here.

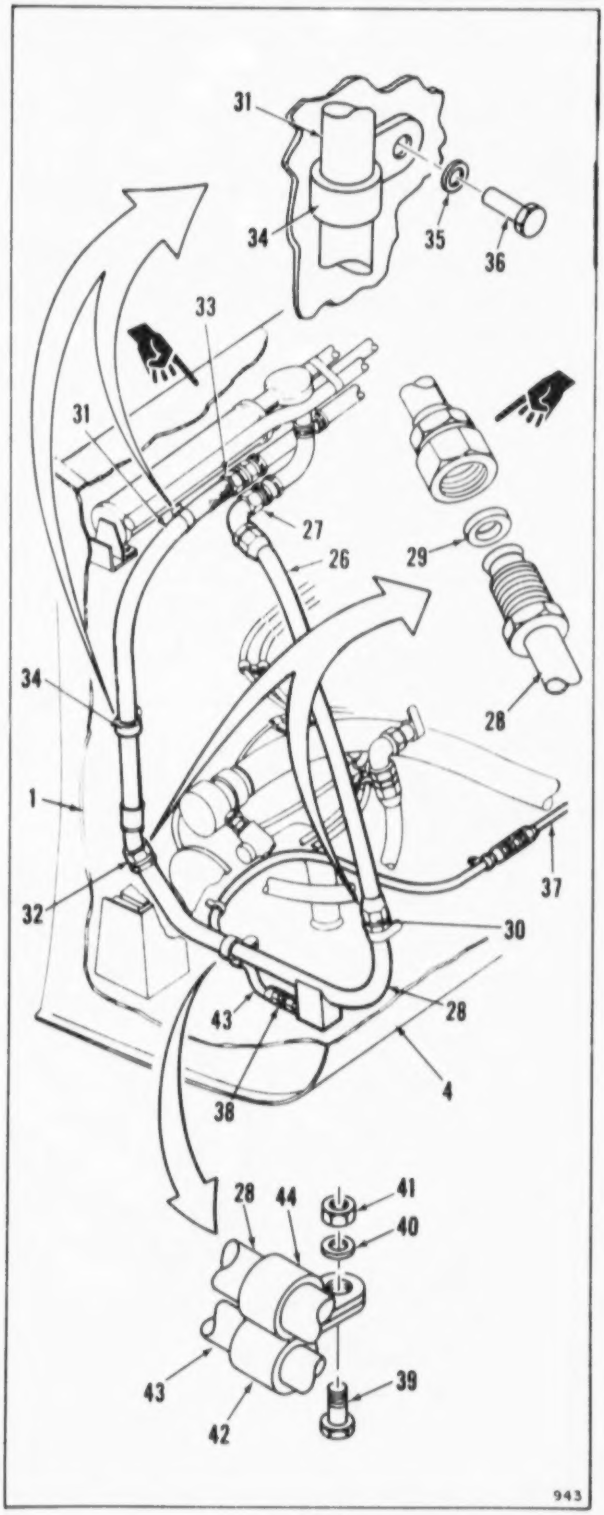
1. Remove barrier material and tape from forward access hole (1) and aft access hole (2). Remove tape residue from face of tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).
2. Remove plugs from vent assembly (3) **guide vent assembly into fuel cell (4)** through forward access hole (1). Make sure air vent tube (5) is at forward end of cell.
3. **Deleted.**
4. **Position vent assembly (3)** between brackets (8). Adjust brackets as needed.
5. **Install four screws (9)**, washers (10), and nuts (11).
6. **Deleted.**
7. **Install** washer (12), screw (13), and **spacer (14)** on fuel cell (4).
8. Install screw (15), spacer tube (16), washer (17), nut (18), and **pipe clamp (19)** on bracket (20).
9. **Install two screws (21)**, washers (22), and nuts (23), **through electrical cable clamp (24) and tube clamp (25).**



GO TO NEXT PAGE

10-44 INSTALL MAIN FUEL TANK VENT ASSEMBLY (Continued) 10-44

10. Remove plugs and tags from hose (26). Position hose in fuel cell (4). **Connect hose connector (27).**
11. Remove plugs and tags from tube (28). Position tube and ring (29). **Connect hose connector (30).**
12. Remove plugs and tags from hose (31). Position ring (29). **Connect hose connectors (32 and 33).**
13. **Position two clamps (34). Install two** washers (35) and **screws (36).**
14. Remove tags and plugs from hose and tube assembly (37) and **position assembly in fuel cell (4) through forward access hole (1). Make sure that flexible hose with 90 degree connector is at aft end of fuel cell.**
15. **Connect hose connector (38).**
16. **Install screw (39)**, washer (40), and nut (41) to connect clamp (42) on hose (43) to clamp (44) on tube (28).



10-44 INSTALL MAIN FUEL TANK VENT ASSEMBLY (Continued) 10-44

17. **Position clamp (45). Install bolt (46),** washer (47), and nut (48).

18. **Position clamp (49). Install bolt (50)** and washer (51).

19. **Install bolt (52),** washer (53), and nut (54) to **connect clamp (55)** on hose (56) **to clamp (57)** on tee (58).

NOTE

Pipe assembly must be positioned so that no high or low spots in the assembly can trap fluids. Clamps and spacers must be positioned to remove slack in hose and ensure a level tube.

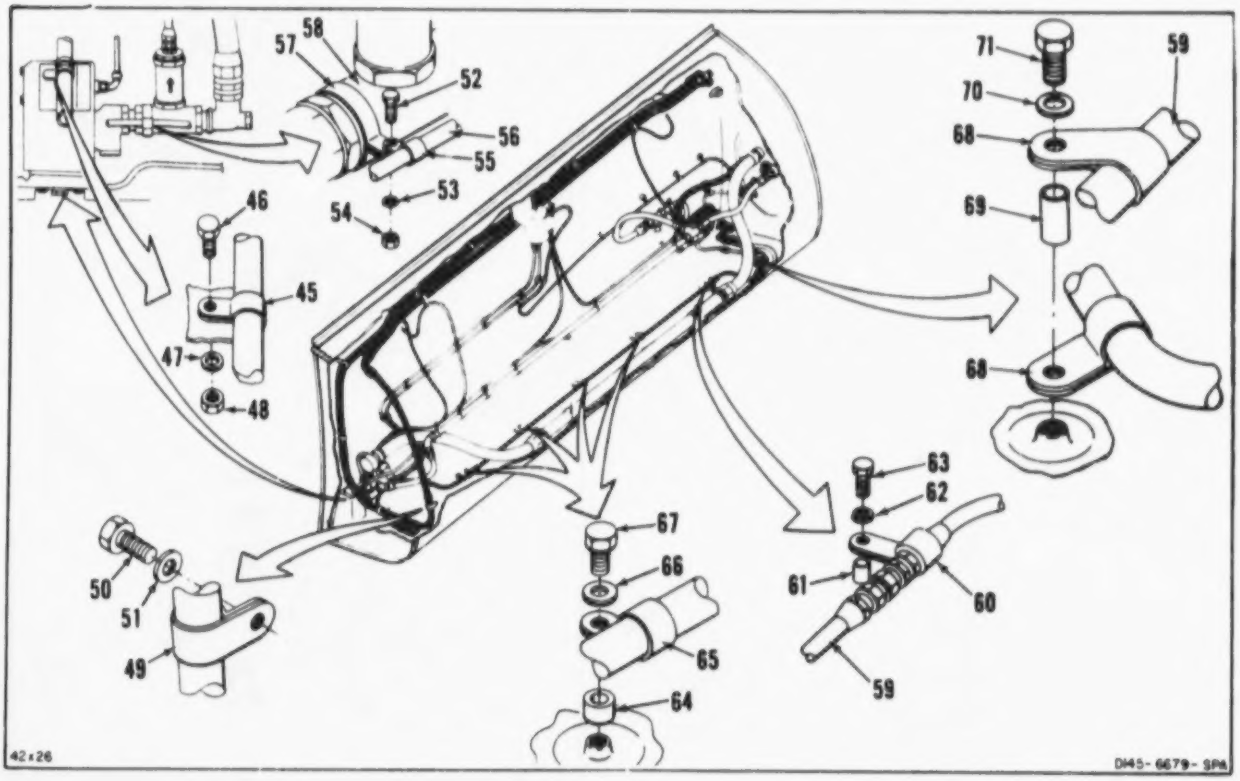
20. **Position pipe assembly (59), clamp (60) and spacer (61). Install** washer (62) and **screw (63).**

21. **Remove tags from four spacers (64) and position as indicated.**

22. **Position four clamps (65). Install four** washers (66) and **screws (67).**

23. **Position two hose clamps (68) and spacer (69).** Install washer (70) and screw (71).

24. Check that no high or low points occur in pipe assembly (59).

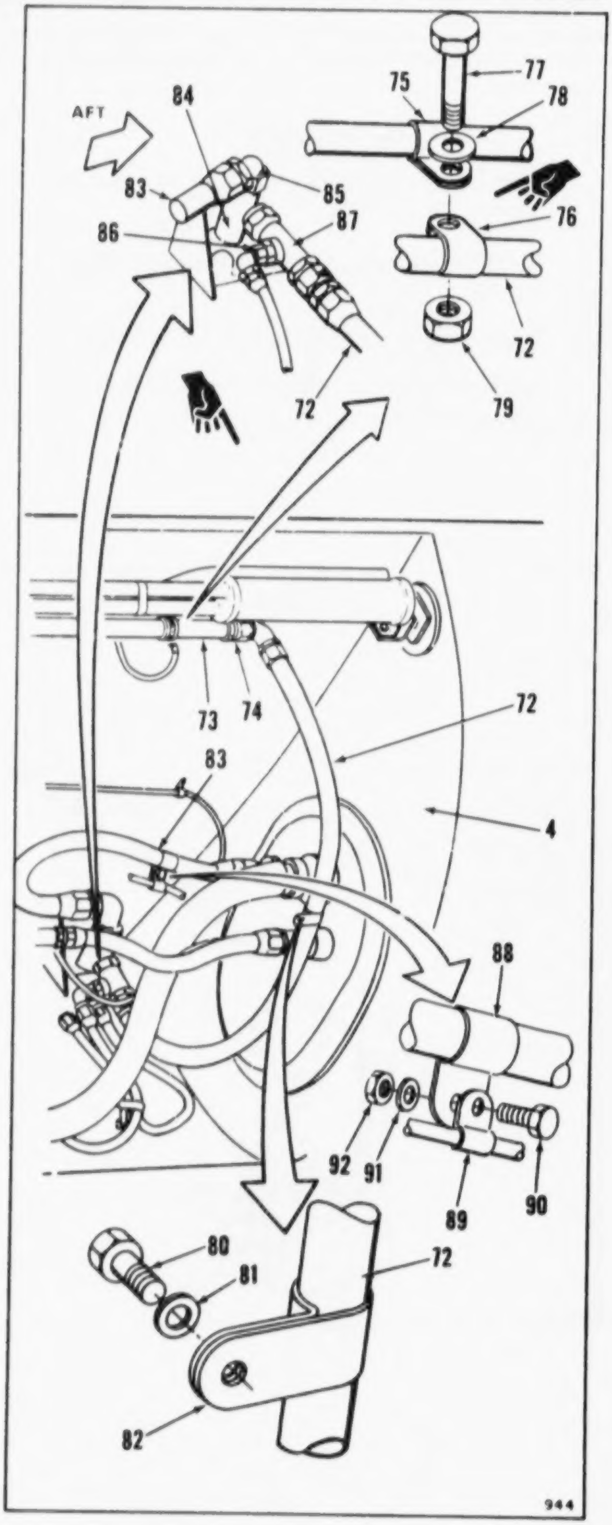


GO TO NEXT PAGE

10-44 INSTALL MAIN FUEL TANK VENT ASSEMBLY (Continued) 10-44

25. Remove tags and plugs from hose (72) and tube (73). Install tube if removed. Position hose in fuel cell (4).
26. **Connect hose connector (74).**
27. Position tube clamp (75) and tube clamp (76). **Install screw (77), washer (78), and nut (79).**
28. **Install two screws (80) and washers (81)** to **connect tube clamp (82)** to tank cell (4).
29. Remove tags and plugs from hose (83). **Position hose** in cell (4). Remove cap from drain valve (84). **Connect 90 degree connector (85)** to valve.
30. Remove tag and plug from hose connector (86) and caps from tee (87). **Connect hose to tee.**
31. **Connect hose (72) to tee (87).**
32. Position hose clamp (88) and electrical wire clamp (89). Install screw (90), washer (91), and nut (92).

INSPECT



GO TO NEXT PAGE

10-44 INSTALL MAIN FUEL TANK VENT ASSEMBLY (Continued) 10-44

FOLLOW-ON MAINTENANCE:

Install main fuel tank transmitters (Task 8-82).

Install main fuel tank aft access door (Task 10-54)

Pressure test vent system (Task 10-117).

Install main fuel tank forward access door (Task 10-52).

Test fuel tank after installation (Task 10-22).

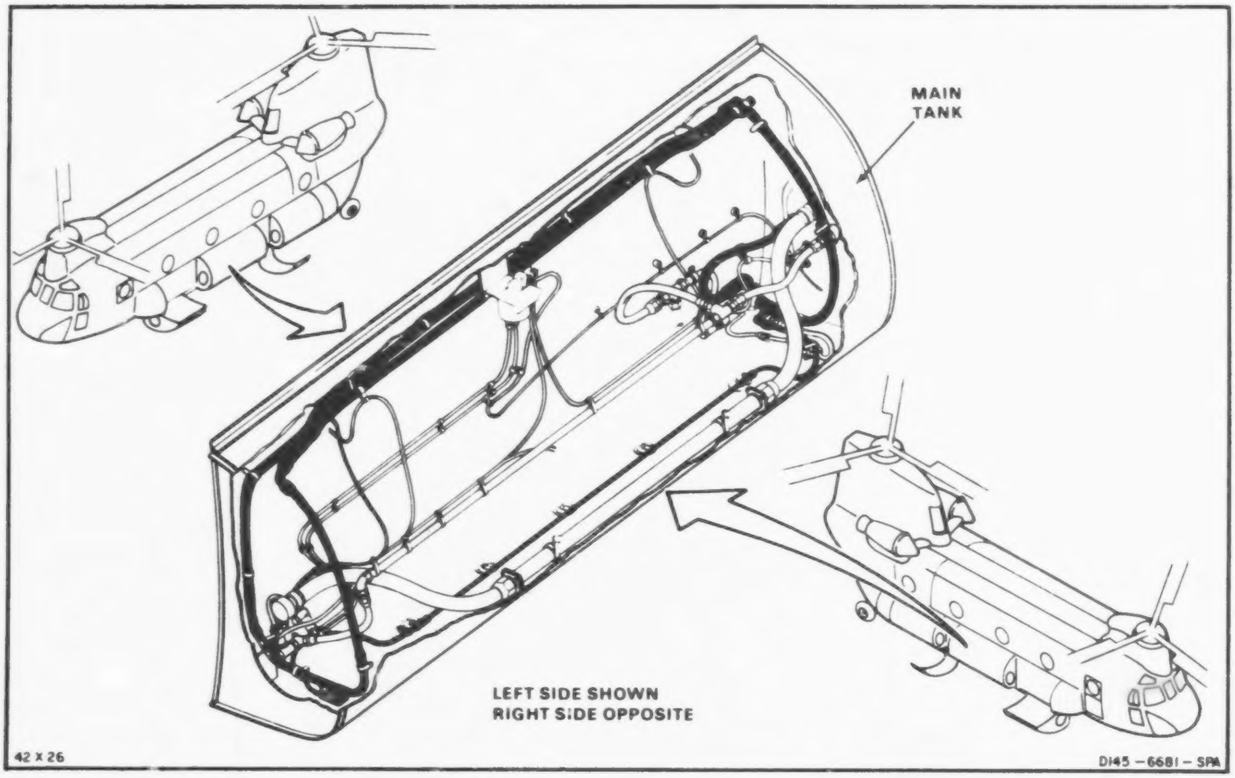
Perform vent system flow test (Task 10-118).

Install forward fuel tank (Task 10-26).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).


MAIN
TANK
LEFT SIDE SHOWN
RIGHT SIDE OPPOSITE
42 x 26
D145 – 6681 – SPA

END OF TASK

10-45 REMOVE MAIN FUEL TANK VENT VALVE 10-45

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Barrier Material (E80)
Tape (E388)

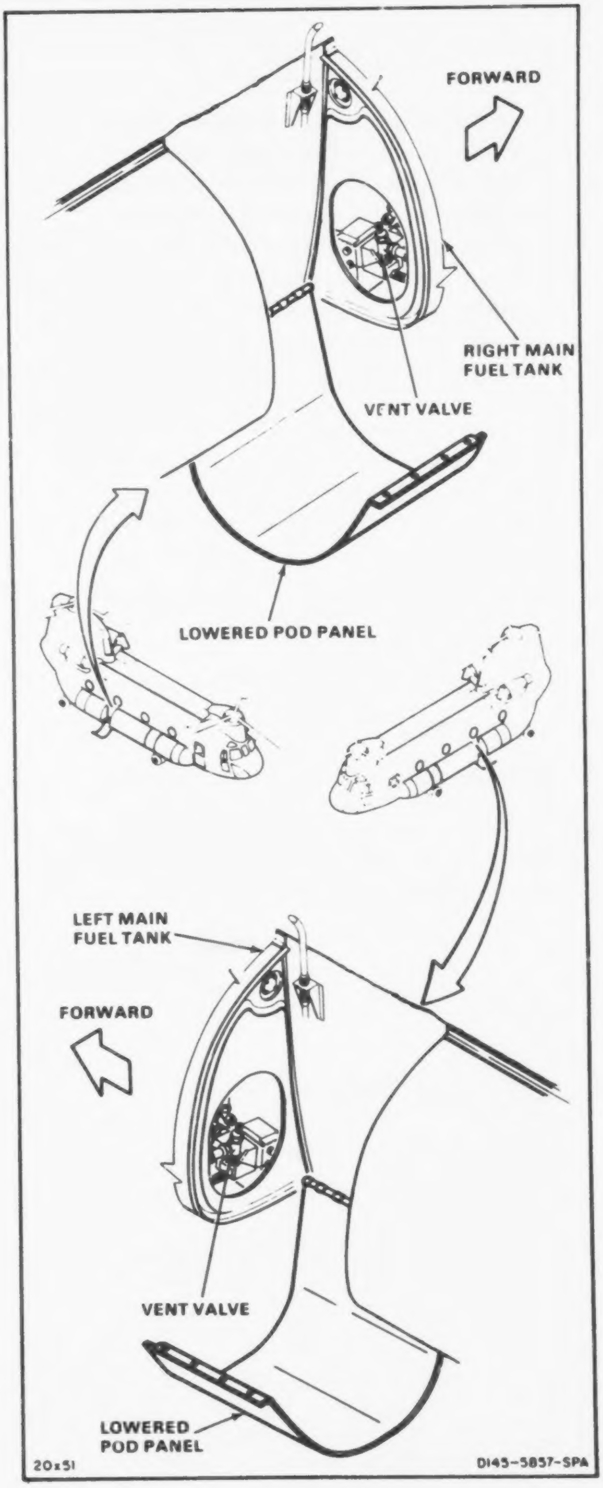
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Main Fuel Tank Defueled (Task 10-34 or 10-35)
Aft Intertank Pod Panel Lowered (Task 2-185)
Main Fuel Tank Aft Access Door Removed (Task 10-53)

General Safety Instructions:

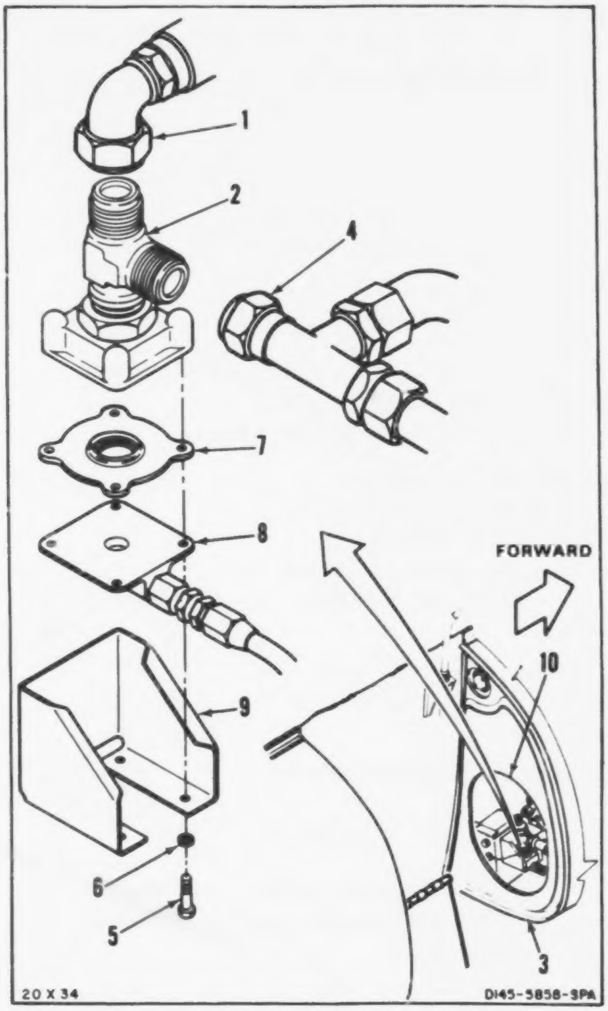
WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
RIGHT MAIN FUEL TANK
VENT VALVE
LOWERED POD PANEL
LEFT MAIN FUEL TANK
FORWARD
VENT VALVE
LOWERED POD PANEL
20x51
D145-5857-SPA

GO TO NEXT PAGE

10-45 REMOVE MAIN FUEL TANK VENT VALVE (Continued) 10-45



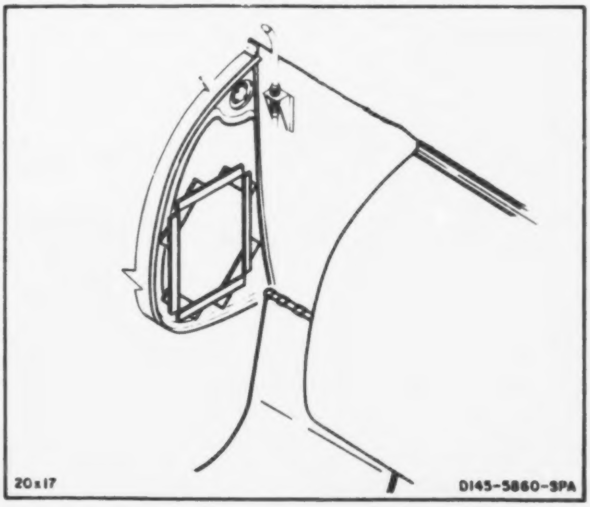
CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

NOTE

Procedure is same to remove vent valve in No. 1 or No. 2 main fuel tank. Removal of No. 2 (right) vent valve is shown here.

1. Disconnect hose (1) from vent valve (2). Plug and **remove hose from tank (3).**
2. **Disconnect tube (4)** from valve (2).
3. **Remove four bolts (5)** and washers (6).
4. **Remove valve (2)** and gasket (7) from adapter plate (8) and bracket (9).
5. Cover access hole (10) in tank (3). Use barrier material (E80) and tape (E388).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-46 INSTALL MAIN FUEL TANK VENT VALVE 10-46

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Dry Cleaning Solvent (E162)
Cloths (E135)
Gloves (E186)

Parts:
Gasket

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

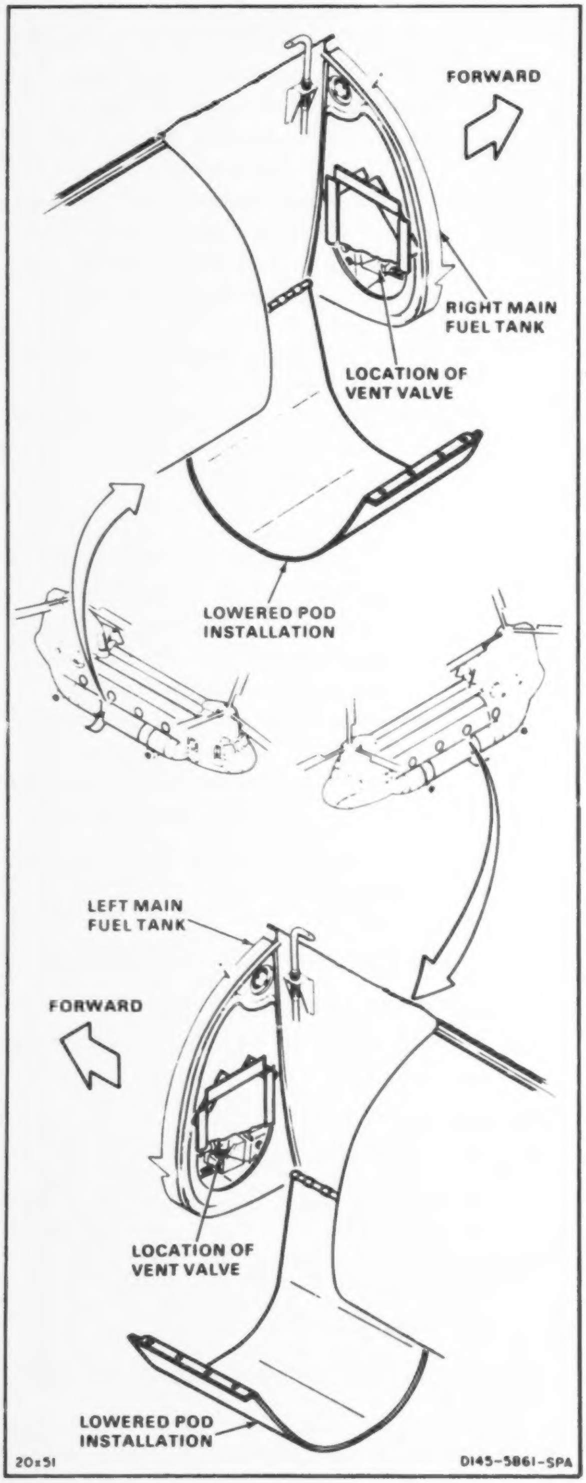
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

NOTE

Procedure is same to install vent valve in No. 1 or No. 2 main fuel tank. Installation of No. 2 (right) vent valve is shown here.


FORWARD
RIGHT MAIN FUEL TANK
LOCATION OF VENT VALVE
LOWERED POD INSTALLATION
LEFT MAIN FUEL TANK
FORWARD
LOCATION OF VENT VALVE
LOWERED POD INSTALLATION
20x51
D145-5861-SPA

GO TO NEXT PAGE

10-46 INSTALL MAIN FUEL TANK VENT VALVE (Continued) 10-46

WARNING

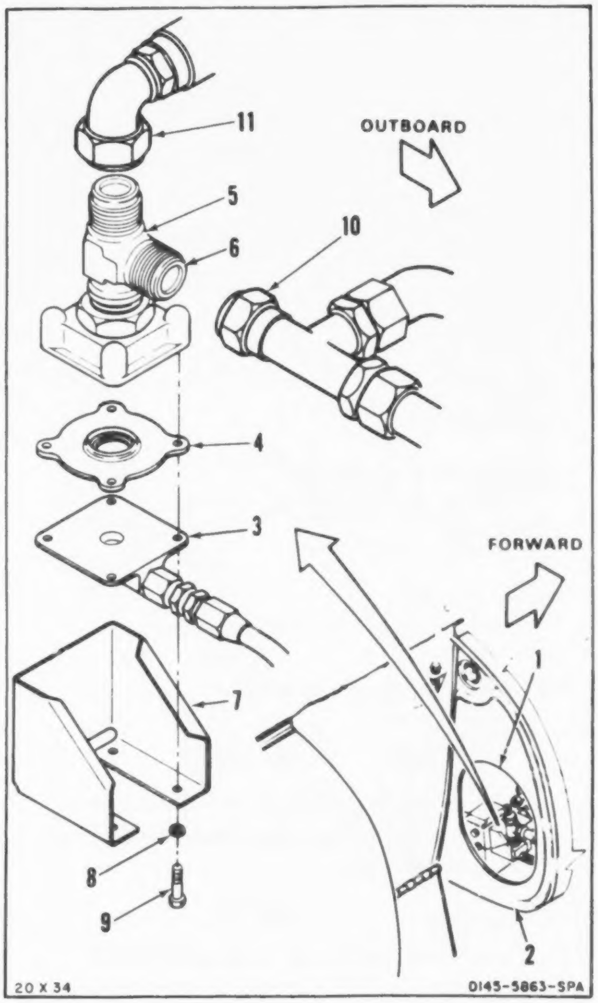
Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Remove barrier material and tape from hole (1) in tank (2). Remove tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

2. **Position adapter plate (3), gasket (4), and valve (5),** with valve port (6) outboard, on bracket (7).
3. **Install four** washers (8) and **bolts (9).**
4. **Connect tube (10)** to valve (5).
5. Remove plug from hose (11). **Connect hose** to valve (5).



INSPECT

FOLLOW-ON MAINTENANCE:

Perform vent system pressure test (Task 10-117).

Install access door (Task 10-54).

Test main fuel tank (Task 10-22).

Perform vent system flow test (Task 10-118).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-4).

Close and latch aft intertank pod panel (Task 2-188).

END OF TASK

10-47 REMOVE MAIN FUEL TANK JET PUMP 10-47

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloths (E135)
Barrier Material (E80)
Tape (E388)

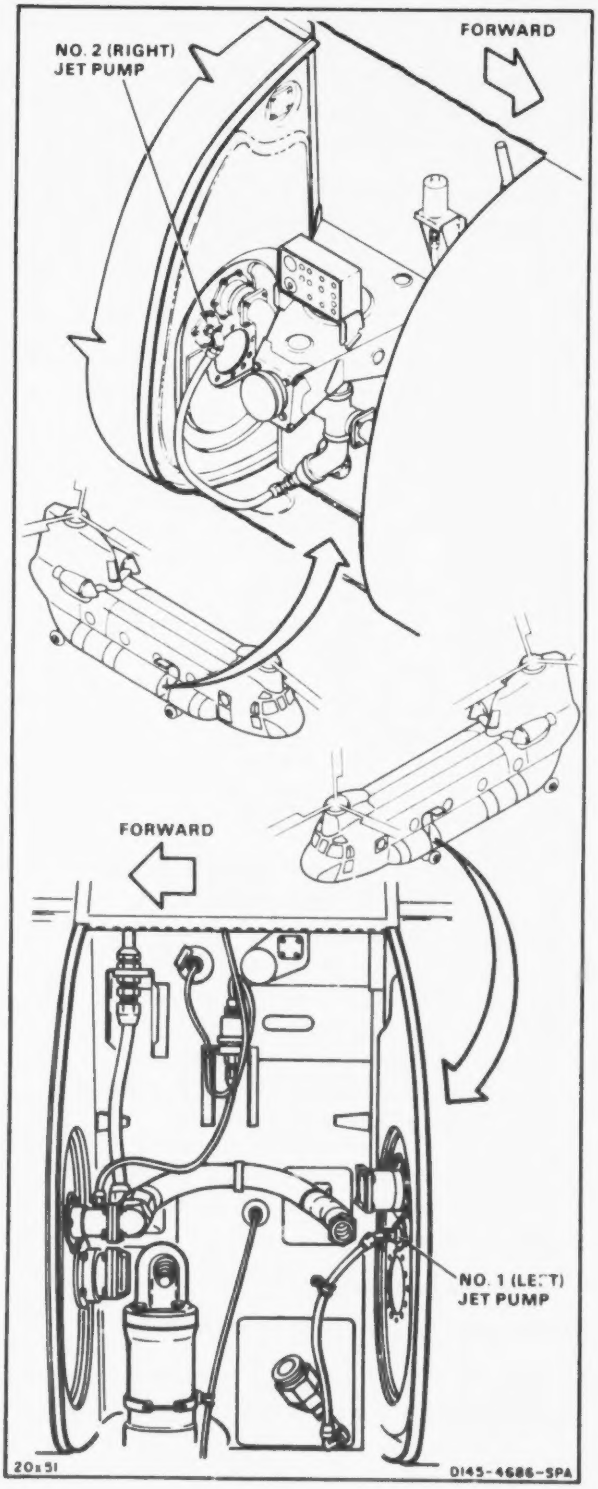
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Landing Gear Access Panel Opened (Task 2-2)
All Tanks on Affected Side of Helicopter Defueled and Both Crossover Valves Closed (Task 10-34 or 10-35)
Affected Main Fuel Tank Purged (Task 10-2)
Main Fuel Tank Fuel Level Shutoff Valve Removed (No. 1 System - Task 10-55, No. 2 System - Task 10-57)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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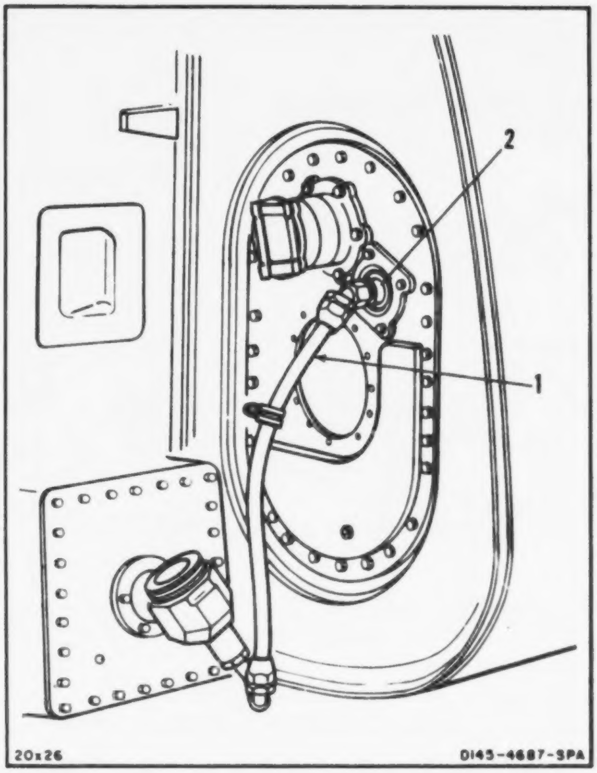
10-47 REMOVE MAIN FUEL TANK JET PUMP (Continued) 10-47

NOTE

Procedure is same to remove No. 1 or No. 2 jet pump. Removal of No. 1 (left) pump is shown here.

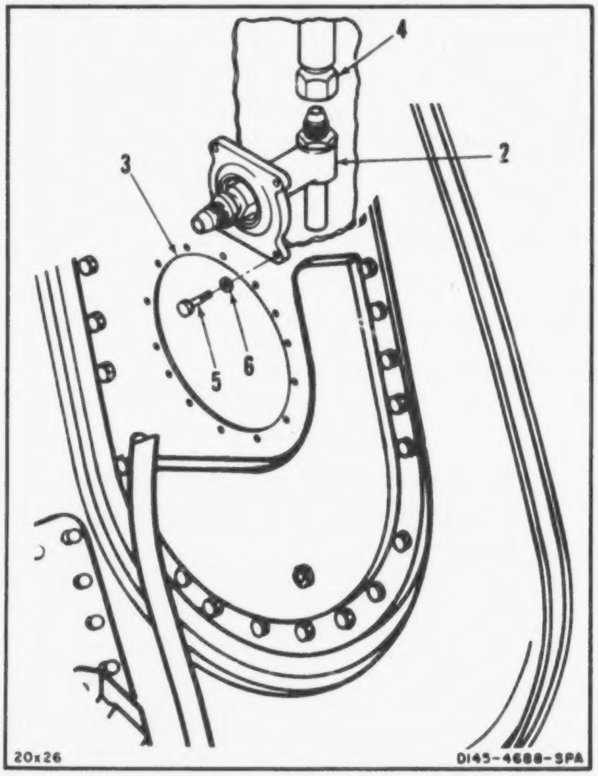
1. **Disconnect hose (1)** from jet pump (2). Use grounded container to catch spilled fuel.
2. Clean up spilled fuel. Use cloths (E135).



CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

3. Reach through hole in tank (3). **Disconnect hose (4)** from jet pump (2). Carefully lower hose inside tank.
4. **Remove four bolts (5)** and washers (6).
5. **Remove jet pump (2)** from tank (3).
6. Cover two holes in tank (3). Use barrier material (E80) and tape (E388).



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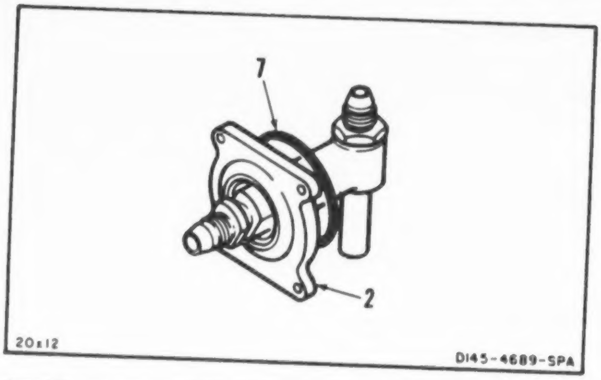
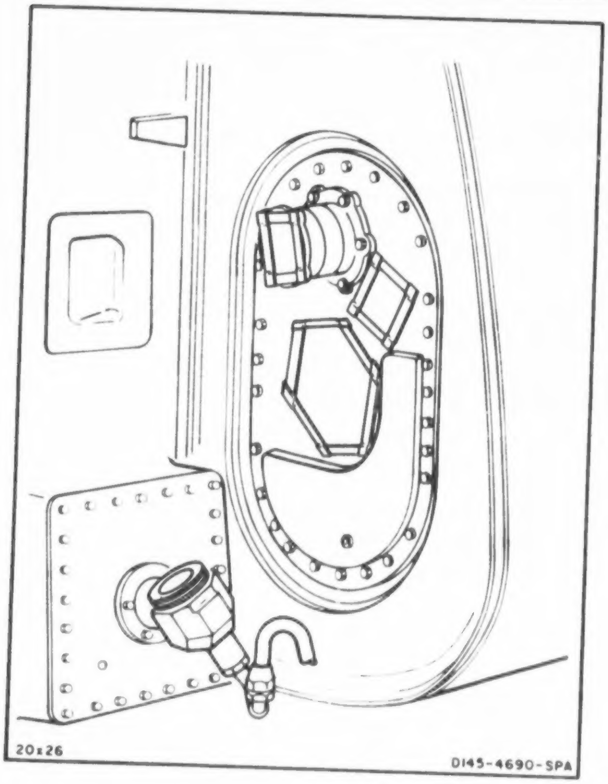
10-47 REMOVE MAIN FUEL TANK JET PUMP (Continued) 10-47

7. Remove packing (7) from flange of jet pump (2).


7
2
20x12
D145-4689-SPA

FOLLOW-ON MAINTENANCE:

None


20x26
D145-4690-SPA

END OF TASK

10-48 INSTALL MAIN FUEL TANK JET PUMP 10-48

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Cloths (E135)
Dry cleaning solvent (E162)
Gloves (E186)

Parts:
Packing

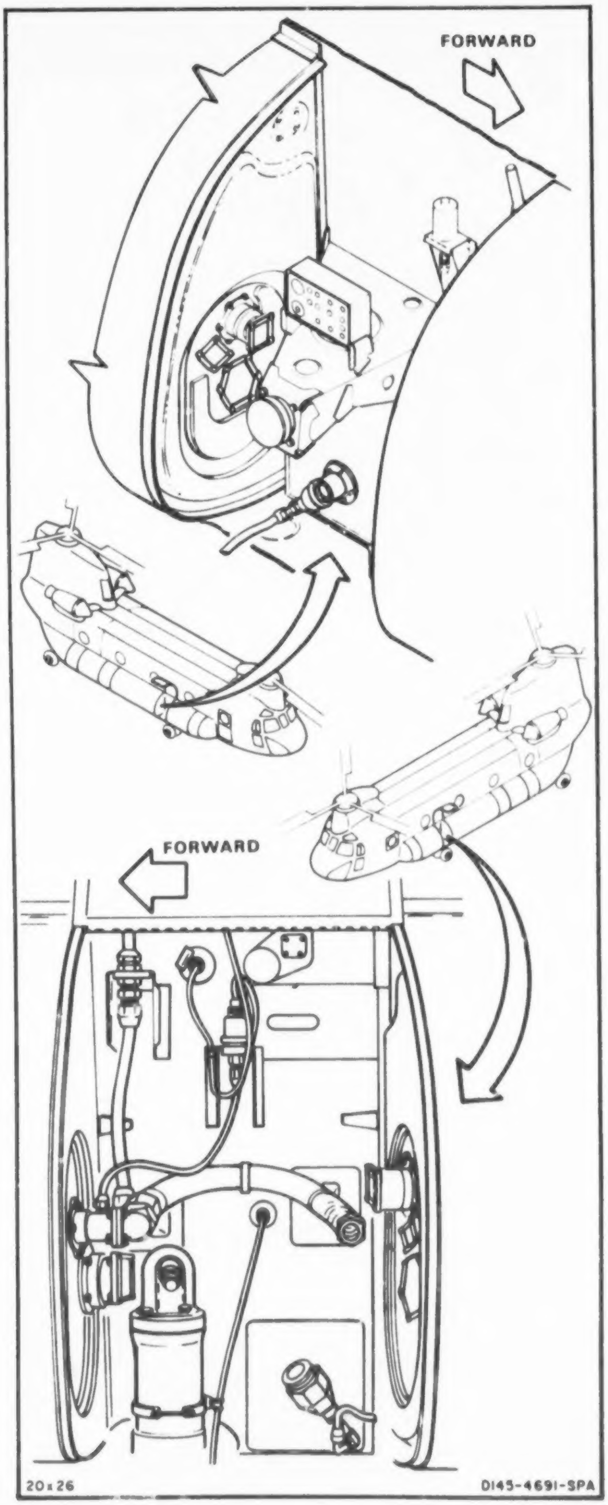
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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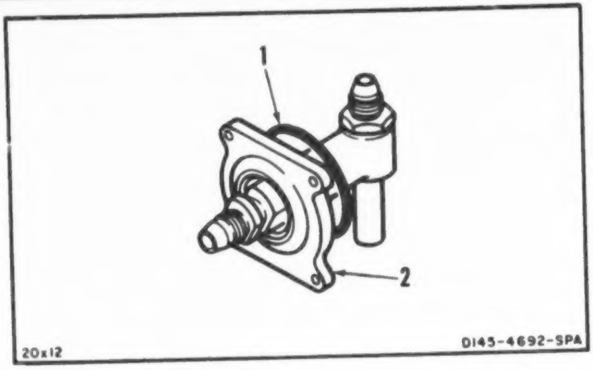
10-48 INSTALL MAIN FUEL TANK JET PUMP (Continued)

NOTE

Procedure is same to install No. 1 or No. 2 jet pump. Installation of No. 1 (left) pump is shown here.

1. Install packing (1) on jet pump (2).



WARNING

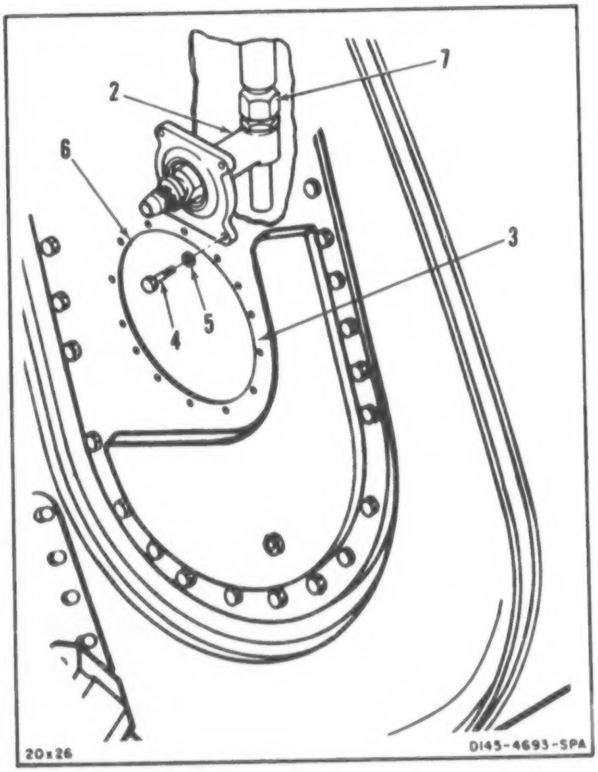
Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

2. Remove barrier material and tape from two holes in tank (3). Clean tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Use goggles for eyes. Wear gloves (E186).
3. **Maneuver jet pump (2) into position in tank (3).**
4. **Install four bolts (4)** and washers (5).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

5. Reach through hole (6) in tank (3) and **connect hose (7)** to jet pump (2).



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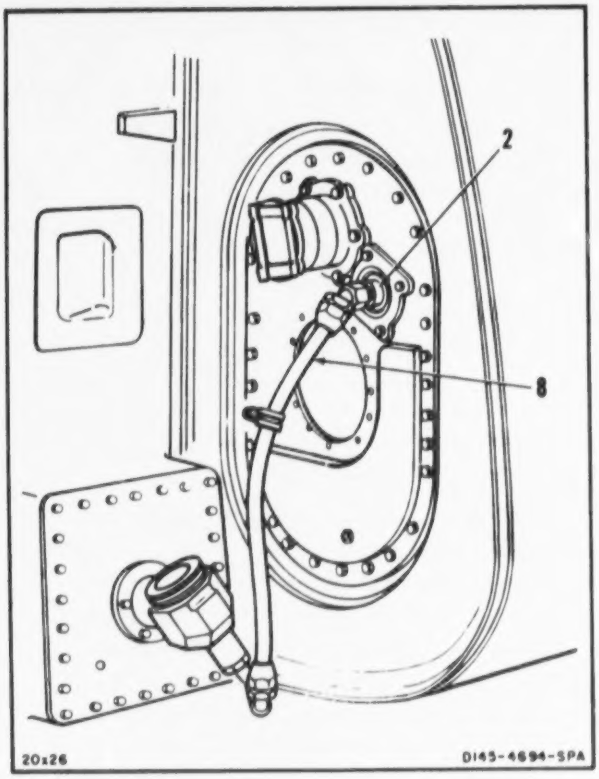
6. **Connect hose (8)** to jet pump (2).

INSPECT



FOLLOW-ON MAINTENANCE:

Perform vent system pressure test (Task 10-117).

Install main tank fuel level shutoff valve (For No. 1 system (left) Task 10-56, for No. 2 system (right) Task 10-58).

Perform vent system flow test (Task 10-118).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

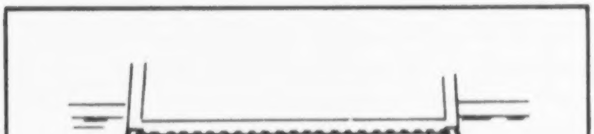
Refuel affected side of helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Check for leaks (Task 10-4).

Perform functional check of fuel system (TM 55-1520-240-T).

Close forward landing gear access panel (Task 2-2).



END OF TASK

10-48.1 REMOVE FUEL TANK BREAKAWAY FITTINGS 10-48.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic Tool Kit, NSN 5180-00-323-4692

Materials:

Cloths (E135)

Personnel Required:

Medium Helicopter Repairer

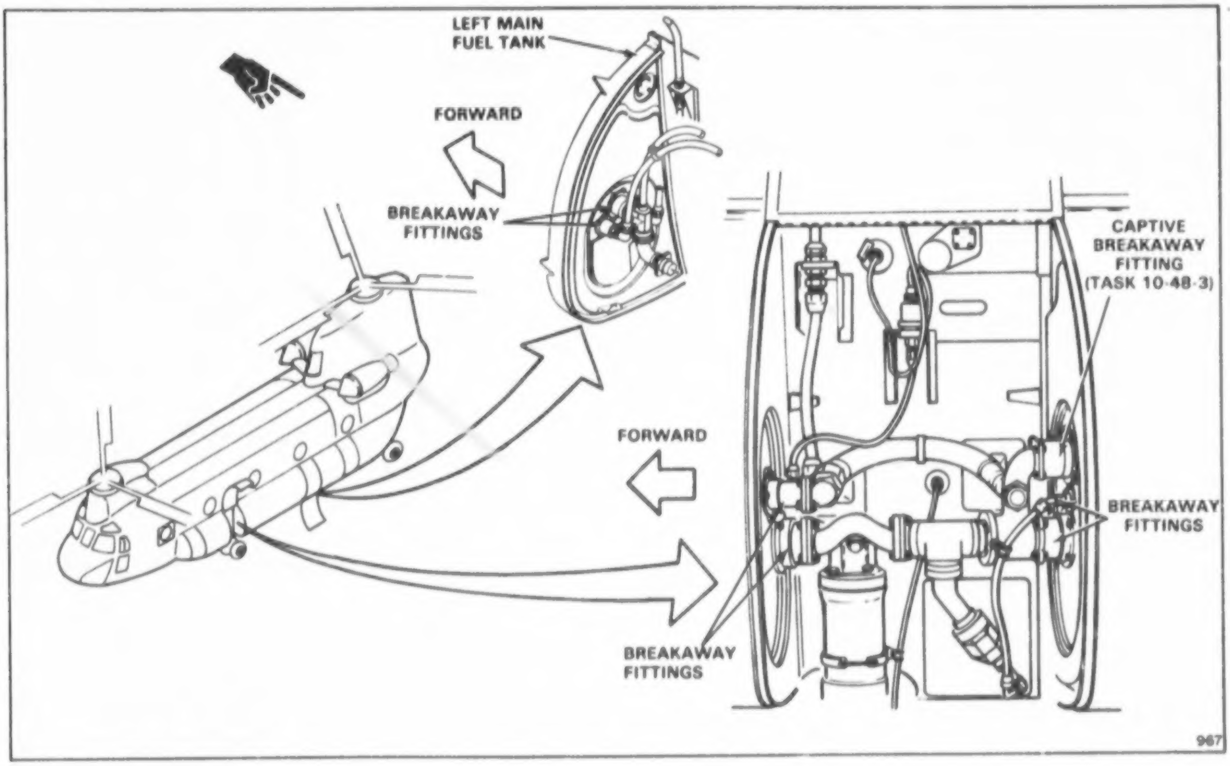
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Landing Gear Door Opened (Task 2-2), or
Aft Intertank Pod Panel Lowered (Task 2-185)
Affected Tank Defueled and Crossover Valves Closed (Task 10-34 or 10-35)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


LEFT MAIN FUEL TANK
FORWARD
BREAKAWAY FITTINGS
FORWARD
CAPTIVE BREAKAWAY FITTING (TASK 10-48-3)
BREAKAWAY FITTINGS
BREAKAWAY FITTINGS
967

GO TO NEXT PAGE

10-48.1 REMOVE FUEL TANK BREAKAWAY FITTINGS (Continued) 10-48.1

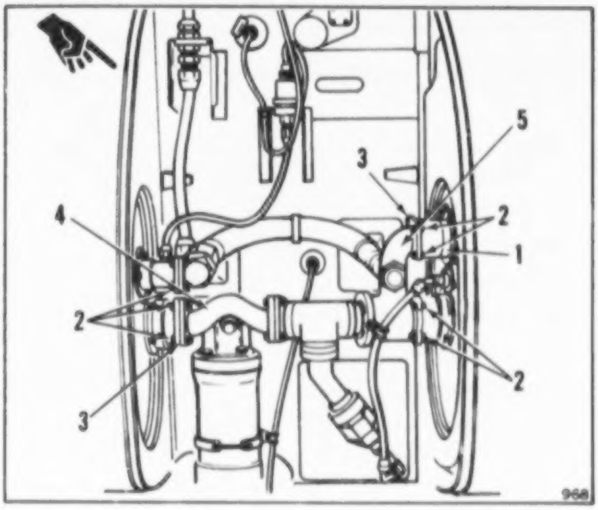
CAUTION

Parts connected to breakaway fittings must be removed without applying force to fitting. Otherwise fitting may be broken.

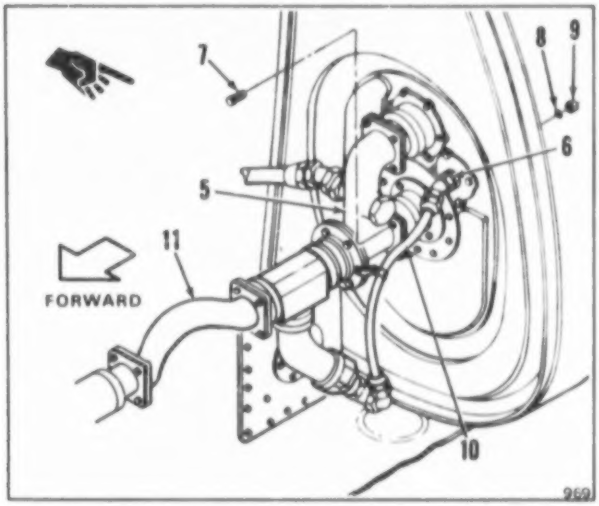
NOTE

Procedure is similar to remove breakaway fittings from any fuel tank except captive breakaway fitting (1) at forward and aft ends of main fuel tank (Task 10-48.3). Forward No. 1 (left) intertank area shown here contains typical breakaway fitting installations.

1. Loosen flange bolts (2). Use wrench on flats (3), to prevent application of force to breakaway fittings. **Disconnect other end of tube (4), or** manifold (5) and remove applicable seals and packings. Catch spilled fuel. Use grounded container.



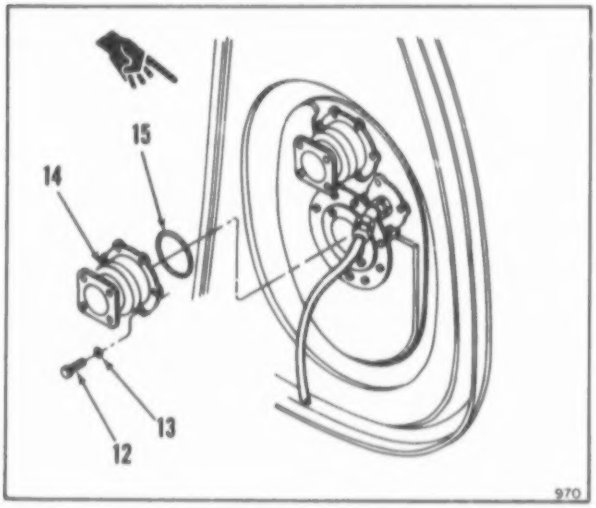
2. Remove hose coupling (6), or three or four bolts (7), washer (8), and nuts (9). **Remove hose (10), tube (11), or manifold (5).**



3. Remove six screws (12) and washers (13). **Remove breakaway fitting (14)** and packing (15). Wipe up spilled fuel. Use cloths (E135).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

10-48.2 INSTALL FUEL TANK BREAKAWAY FITTINGS 10-48.2

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

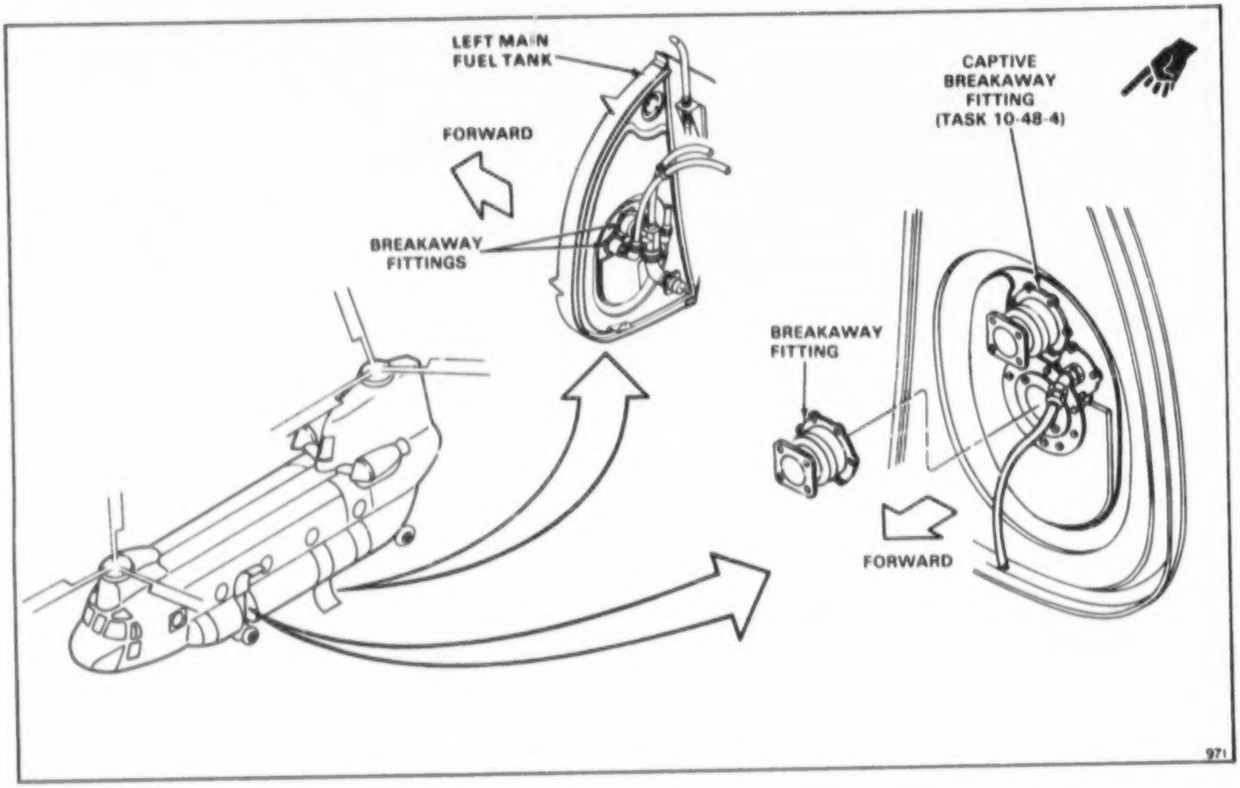
Medium Helicopter Repairer

Inspector

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


LEFT MAIN FUEL TANK
FORWARD
BREAKAWAY FITTINGS
CAPTIVE BREAKAWAY FITTING (TASK 10-48-4)
BREAKAWAY FITTING
FORWARD
971

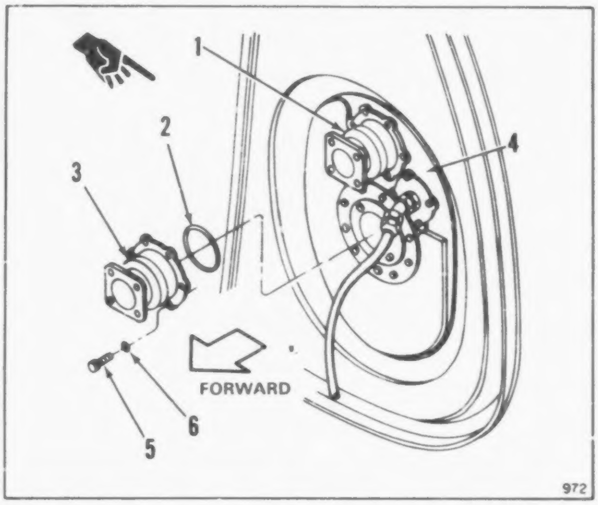
GO TO NEXT PAGE

10-48.2 INSTALL FUEL TANK BREAKAWAY FITTINGS (Continued) 10-48.2

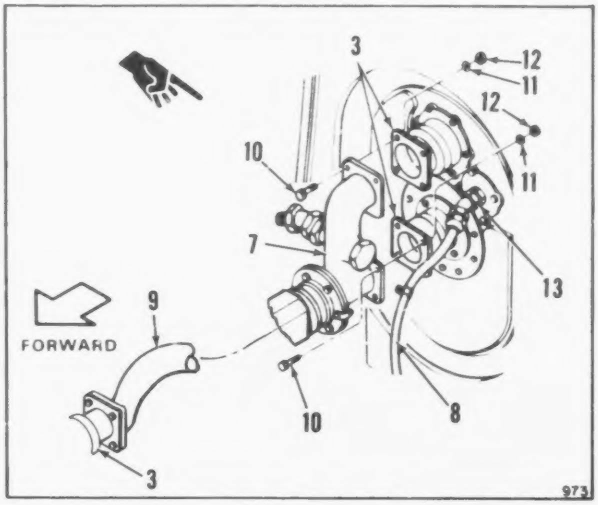
NOTE

Procedure is similar to install breakaway fittings in any fuel tank except captive breakaway fitting (1) at forward and aft ends of main fuel tank (Task 10-48.4). Forward No. 1 (right) intertank area shown here contains typical breakaway fitting installations.

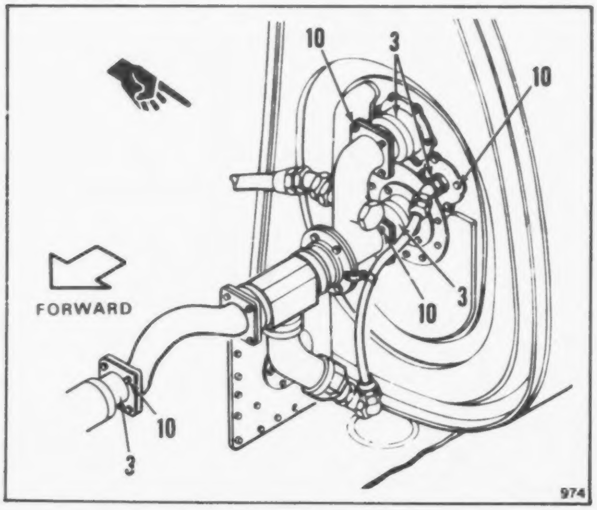
1. **Position packing (2) and breakaway fitting (3)** on fuel tank (4). **Install** six **screws (5)** and washers (6).



2. **Position manifold (7), hose (8), or tube (9) and applicable seals and packings on breakaway fitting (3). Install** eight **bolts (10),** washers (11), and nuts (12) loosely. If connecting hose coupling (13) breakaway fitting, hold flats with wrench while tightening. Connect tube or fitting at other end.



3. **Tighten bolts (10) at breakaway fittings (3).**



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10-48.2 INSTALL FUEL TANK BREAKAWAY FITTINGS (Continued) 10-48.2

FOLLOW-ON MAINTENANCE:

Perform vent system flow test (Task 10-118).

Perform pressure refueling system test (Task 10-119).

Test affected tank after installation (Task 10-22, 10-27, or 10-32).

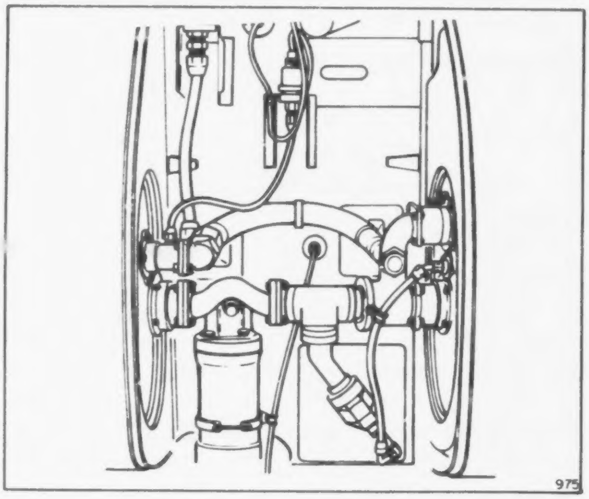
Refuel helicopter (Task 10-51).

Check for leaks (Task 10-4).

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (TM 55-1520-240-T).

Close forward landing gear door or aft intertank pod panel (Task 2-2 or 2-188).



END OF TASK

10-48.3 REMOVE CAPTIVE BREAKAWAY FITTING 10-48.3

INITIAL SETUP

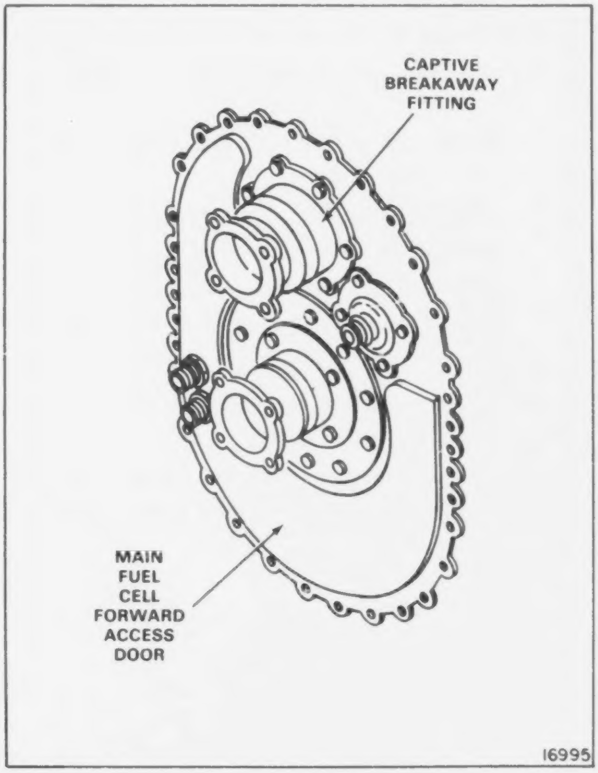
Applicable Configurations:
All

Tools:
Aircraft Mechanic Took Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer

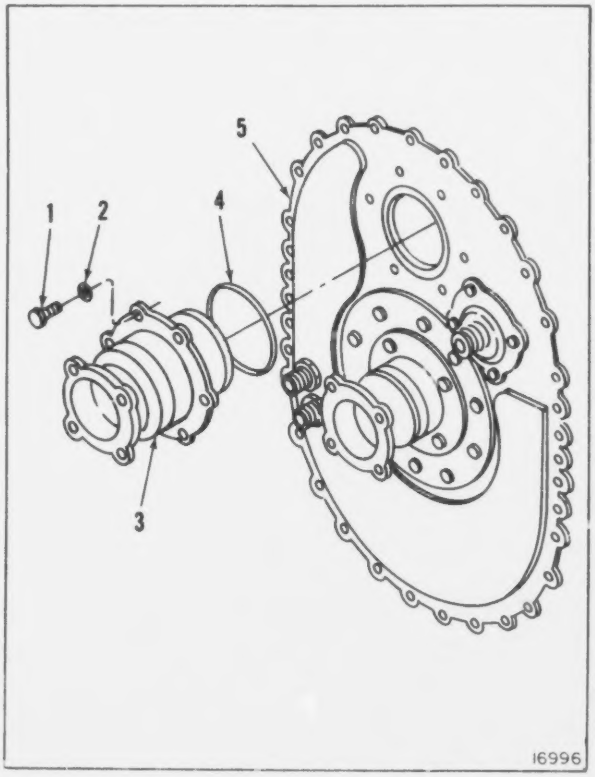
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Landing Gear Door Opened (Task 2-2)
or
Aft Intertank Pod Panel Lowered (Task 2-185)
Affected Tank Defueled and Crossover Valves Closed (Task 10-34 or 10-35)
Grounded Container, Two Quart
Main Fuel Tank Forward Access Door Removed (Task 10-51)
or
Main Fuel Tank Aft Access Door Removed (Task 10-54)



NOTE

Procedure is the same to remove captive breakaway fitting from any fuel tank access door. Main fuel tank forward access door is shown here.

1. **Remove six screws (1) and washers (2).**
2. Remove **fitting (3) and packing (4)** from access door (5).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

10-48.4 INSTALL CAPTIVE BREAKAWAY FITTINGS 10-48.4

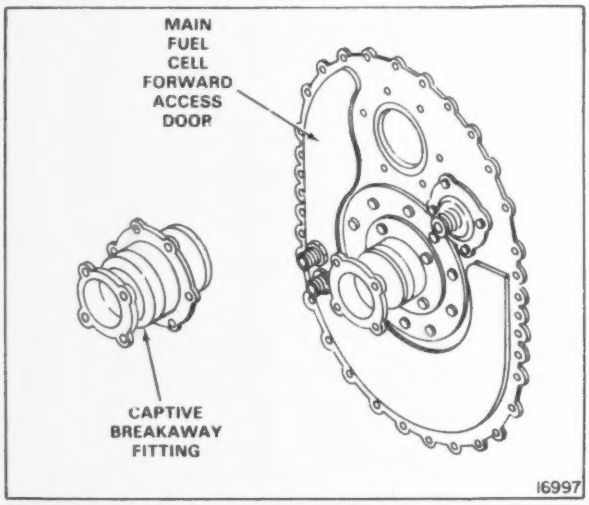
INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic Tool Kit,
NSN 5180-00-323-4692

Materials:
None

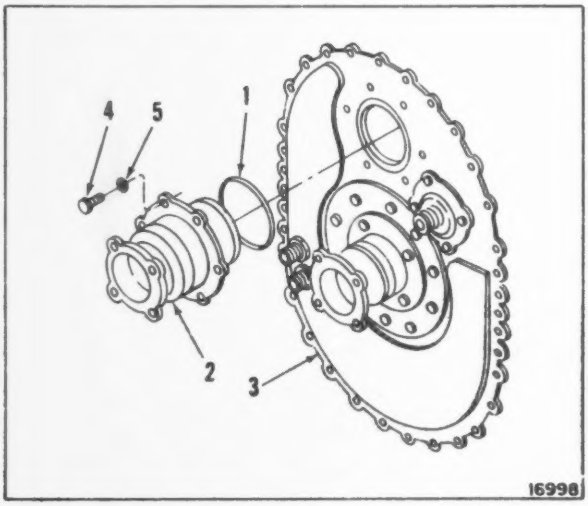
Personnel Required:
Medium Helicopter Repairer


MAIN FUEL CELL FORWARD ACCESS DOOR
CAPTIVE BREAKAWAY FITTING
16997

NOTE

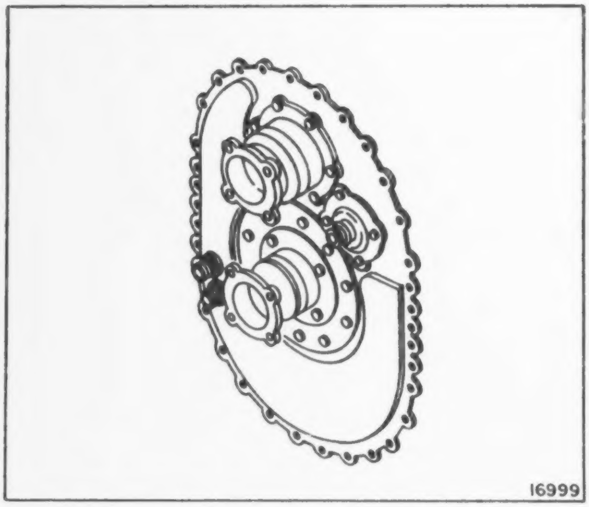
Procedure is the same to install captive breakaway fitting from any fuel tank access door. Main fuel tank forward access door is shown here.

1. **Position packing (1) and captive breakaway fitting (2)** on access door (3).
2. **Install** six **screws** (4) and washers (5).


4
5
1
2
3
16998

FOLLOW-ON MAINTENANCE:

Install Fuel Cell Forward or Aft Access Door (Task 10-52 or 10-54).



END OF TASK

10-49 REMOVE JET PUMP MOTIVE FLOW CHECK VALVE 10-49

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tools Kit,
NSN 5180-00-323-4692

Materials:
Barrier Material (E80)
Tape (E388)

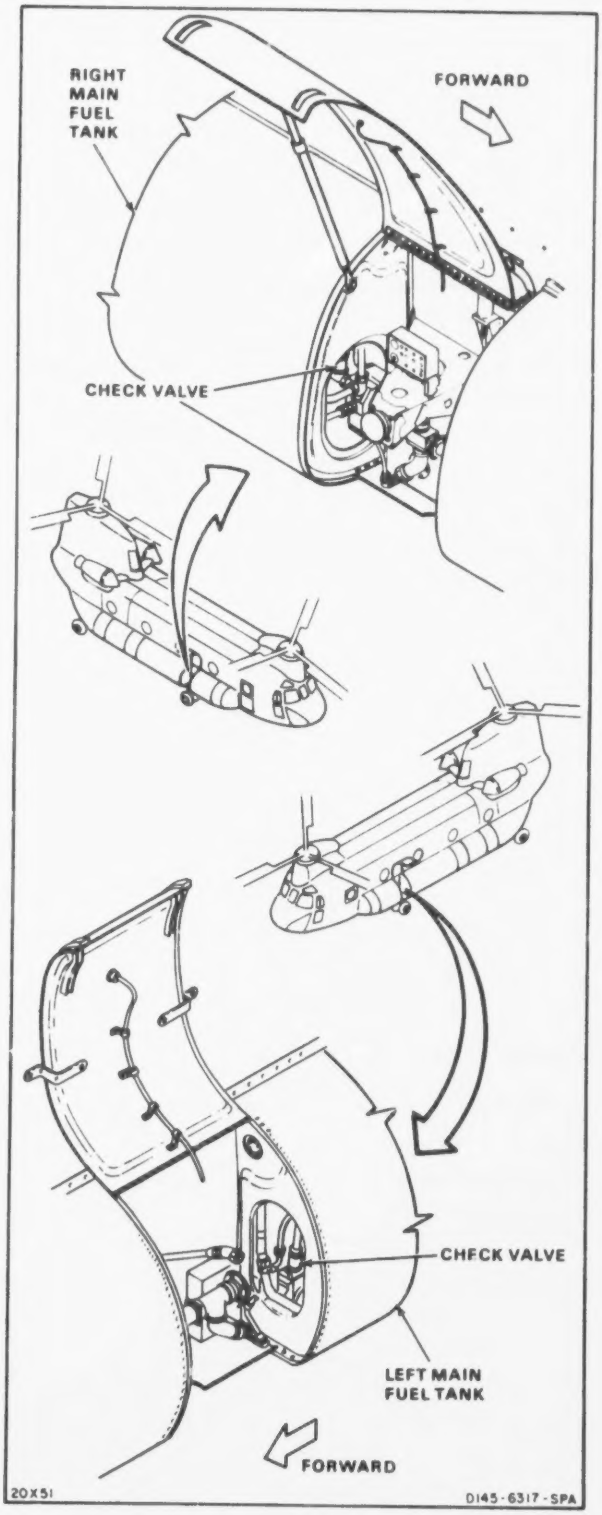
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Landing Gear Access Panel Opened (Task 2-2)
Main Fuel Tank Forward Access Door Removed (Task 10-51)

General Safety Instructions:

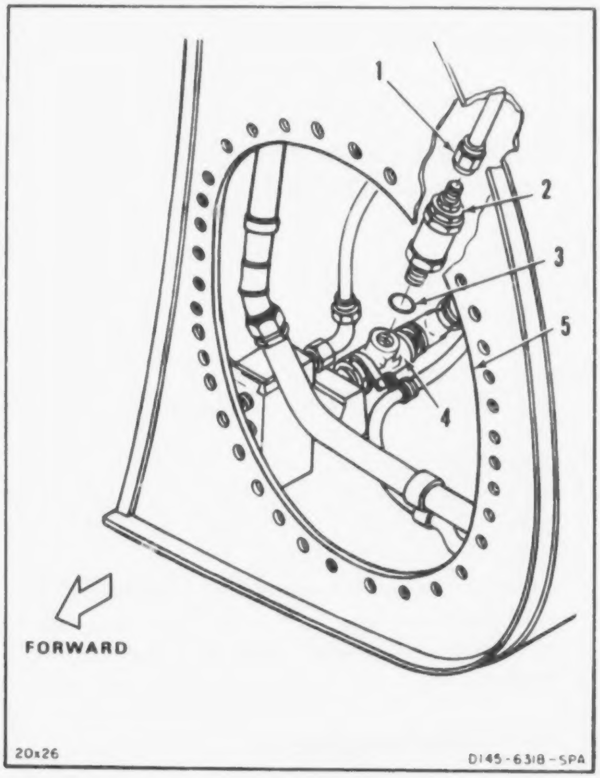
WARNING

All regulations and instructions for handling fuels shall be strictly observed.


RIGHT MAIN FUEL TANK
FORWARD
CHECK VALVE
CHECK VALVE
LEFT MAIN FUEL TANK
FORWARD
20X51
D145-6317-SPA

GO TO NEXT PAGE

10-49 REMOVE JET PUMP MOTIVE FLOW CHECK VALVE (Continued) 10-49



NOTE

Procedure is same to remove check valve from No. 1 or No. 2 main fuel tank removal of No. 1 (left) check valve is shown here.

1. **Disconnect hose (1).**
2. **Remove check valve (2)** and packing (3) from tee (4).
3. Cover access hole in tank (5) with barrier material (E80) and tape (E388).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-50 INSTALL JET PUMP MOTIVE FLOW CHECK VALVE 10-50

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Dry Cleaning Solvent (E162)
Cloths (E120)
Gloves (E186)

Parts:
Packings

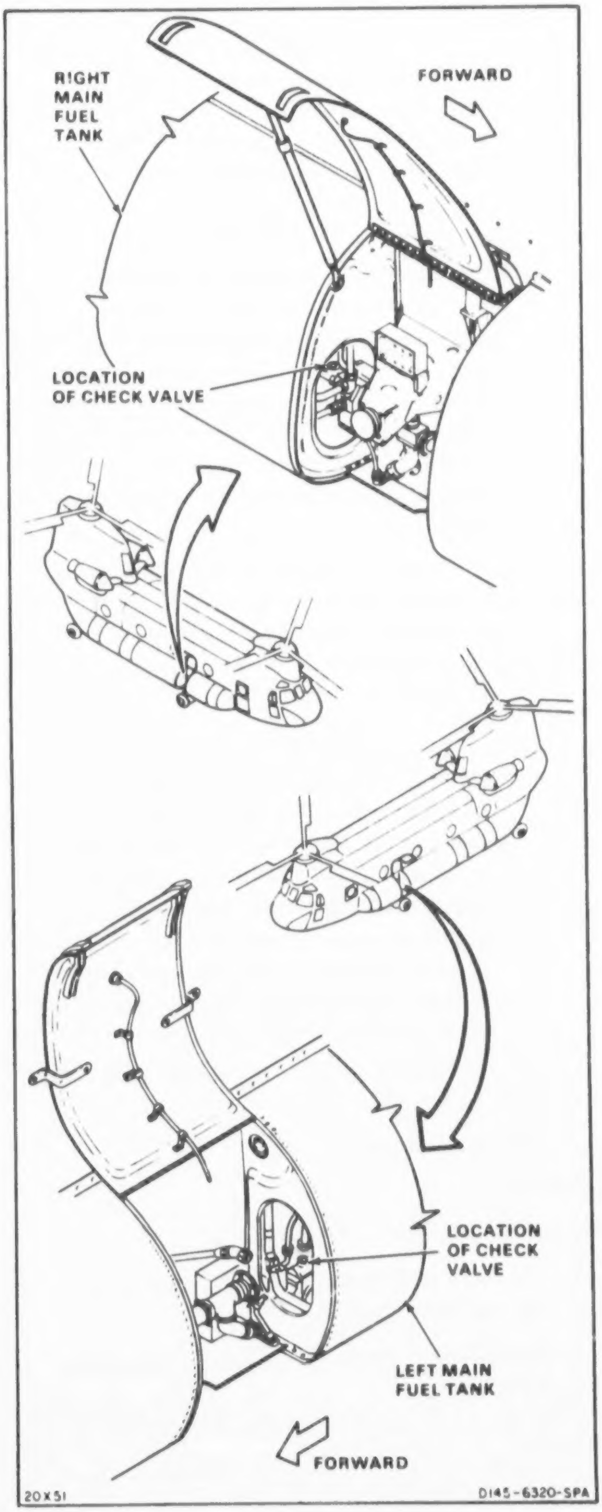
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

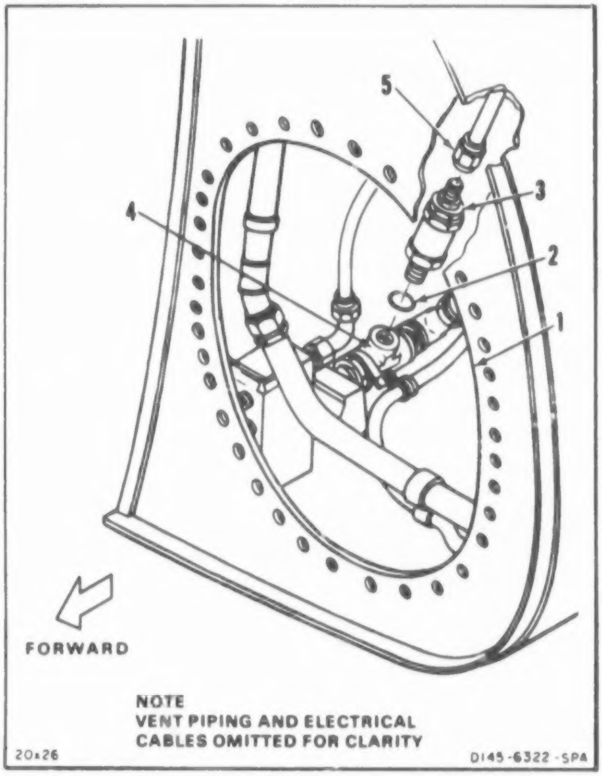
WARNING

All regulations and instructions for handling fuels shall be strictly observed.


RIGHT MAIN FUEL TANK
FORWARD
LOCATION OF CHECK VALVE
LOCATION OF CHECK VALVE
LEFT MAIN FUEL TANK
FORWARD
20X51
D145-6320-SPA

GO TO NEXT PAGE

10-50 INSTALL JET PUMP MOTIVE FLOW CHECK VALVE (Continued) 10-50



NOTE
VENT PIPING AND ELECTRICAL CABLES OMITTED FOR CLARITY

NOTE

Procedure is same to install motive flow check valve in No. 1 or No. 2 main fuel tank. Installation of No. 1 (left) check valve is shown here.

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Remove barrier material and tape from access hole in tank (1). Clean tape residue from tank. Use dry cleaning solvent (E162) and clean cloths (E120). Wear goggles to protect eyes. Wear gloves (E186).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

2. **Install packing (2) and check valve (3) set in tee (4).**
3. **Connect hose (5).**

INSPECT

FOLLOW-ON MAINTENANCE:

Perform vent system pressure test on affected tank (Task 10-117).

Install main fuel tank forward access door (10-52).

Test main fuel tank (Task 10-22).

Perform vent system flow test (Task 10-118).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (left or right) (TM 55-1520-240-T).

Inspect for leaks (Task 10-4).

Close forward landing gear access panel (Task 2-2).

END OF TASK

10-51 REMOVE MAIN FUEL TANK FORWARD BOOST PUMP AND CHECK VALVE 10-51

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Wrench, Open End, 1 1/2-Inch
Wrench, Open End, 1 7/8-Inch

Materials:
Barrier Material (E80)
Tape (E388)
Paper Tags (E264)
Cloths (E120)

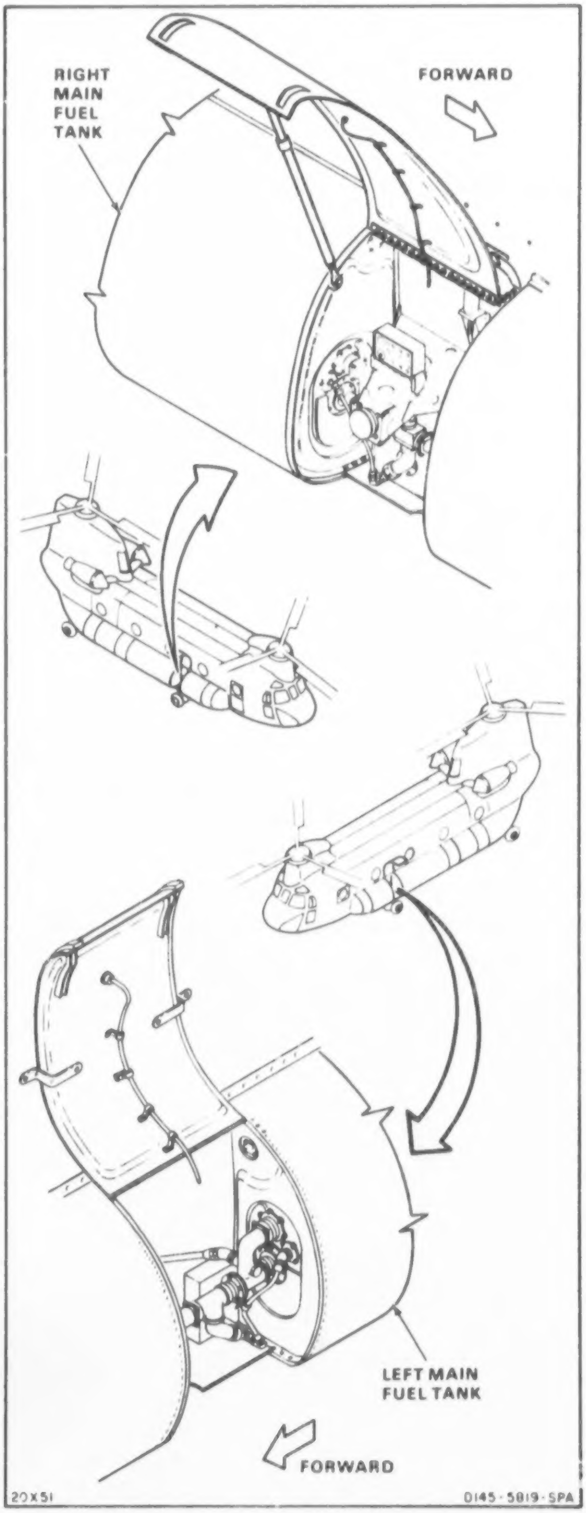
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Landing Gear Access Panel Open (Task 2-2)
Main Tank Defueled (Task 10-34 or 10-35)
Main Fuel Tank Purged (Task 10-2)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



GO TO NEXT PAGE

10-51 REMOVE MAIN FUEL TANK FORWARD BOOST PUMP AND CHECK VALVE (Continued) 10-51

NOTE

Procedure is same to remove forward boost pump and check valve from No. 1 or No. 2 main fuel tank. Removal of No. 1 (left) boost pump and check valve is shown here.

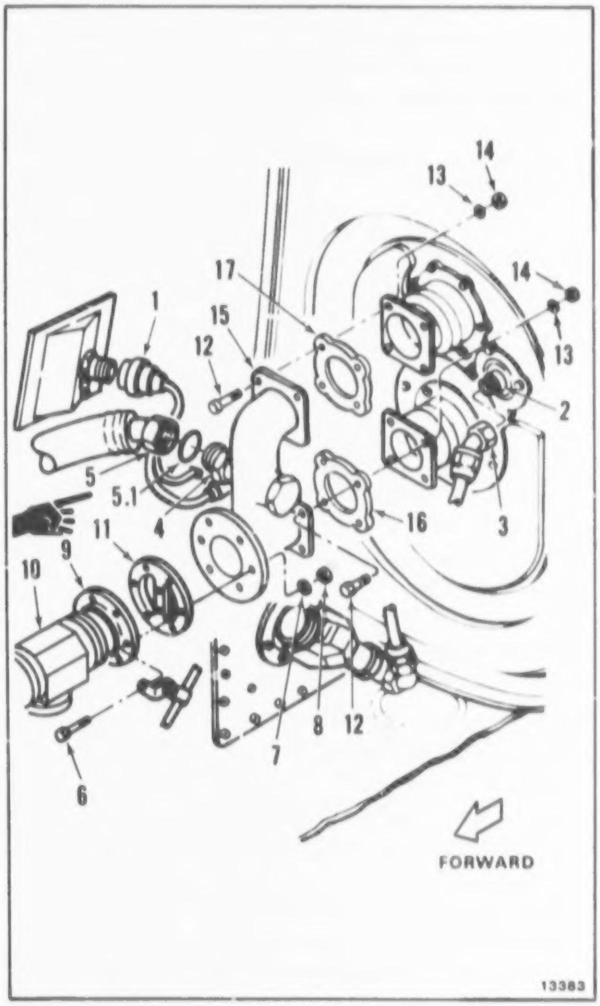
REMOVE TANK FORWARD ACCESS DOOR

1. **Disconnect electrical connector (1).**

CAUTION

When disconnecting fuel hoses from forward access door, do not allow fittings to turn. Otherwise, fittings can fail and cause fuel blockage.

2. Hold fitting (2) with wrench. **Disconnect hose (3).** Catch spilled fuel. Use grounded container. Plug hose and cap fitting.
3. Hold fitting (4) with wrench. **Disconnect hose (5).** Remove conical seal (5.1) from hose (5) fitting. Plug hose and cap fitting.
4. **Remove six bolts (6),** washers (7), and nuts (8).
5. Slide adapter (9) forward into fitting (10). **Remove check valve (11).**
6. **Remove eight bolts (12),** washers (13), and nuts (14).
7. **Remove manifold (15)** and gaskets (16 and 17).



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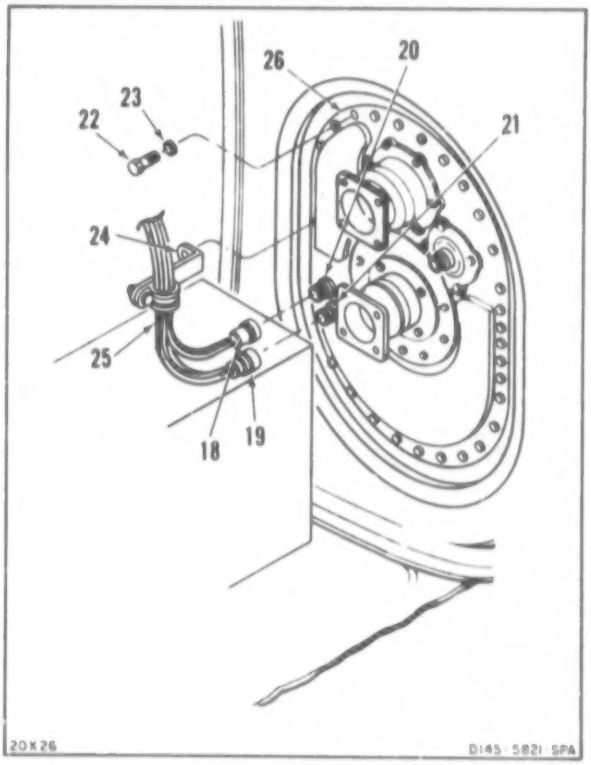
10-51 REMOVE MAIN FUEL TANK FORWARD BOOST PUMP AND CHECK VALVE (Continued) 10-51

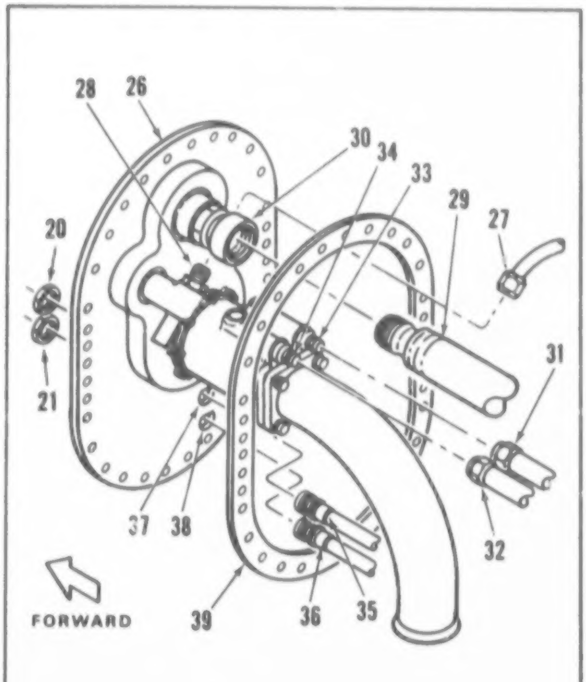
8. Tag two electrical plugs (18 and 19). Remove lockwire and **disconnect two plugs.**
9. Remove lockwire and **loosen two locknuts (20 and 21).**
10. **Remove 30 bolts (22),** washers (23), **and bracket (24).** Tie back cables (25). Use tape (E388).
11. **Move access door (26) from tank for access to inside of door.**



CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

12. **Disconnect hose (27).** Plug and tag hose and cap nipple (28).
13. **Disconnect hose (29).** Cap hose and plug ring nut (30).
14. **Disconnect and tag two hoses (31 and 32).** Plug hoses and cap nipples (33 and 34).
15. **Remove locknuts (20 and 21).**
16. **Remove electrical cables (35 and 36)** from holes (37 and 38) in access door (26). Tag cables.
17. **Remove access door (26)** and gasket (39).



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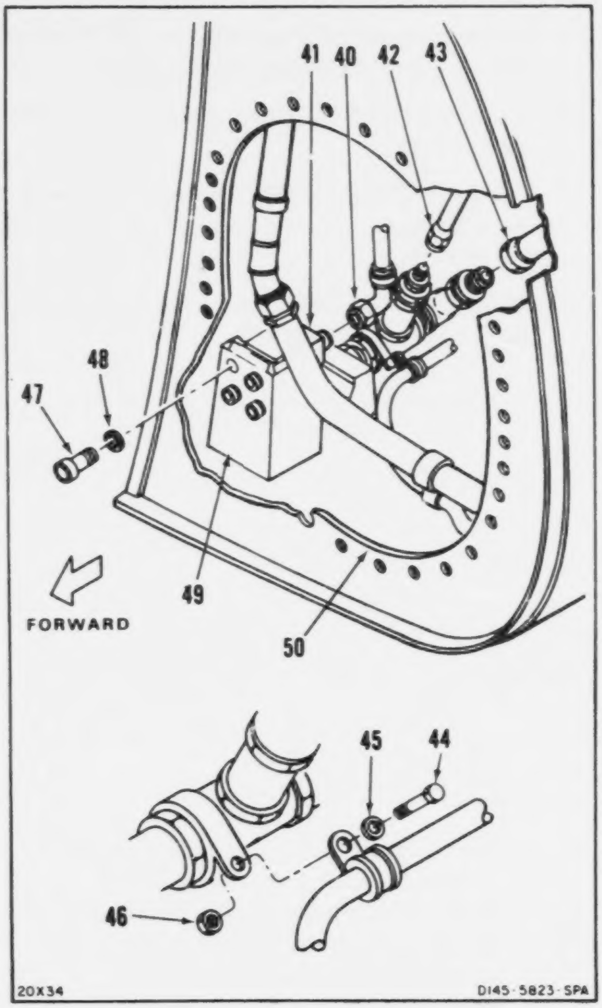
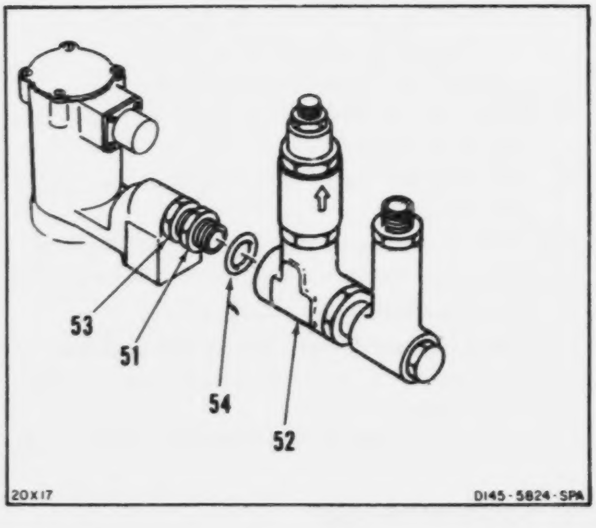
10-51 REMOVE MAIN FUEL TANK FORWARD BOOST PUMP AND CHECK VALVE (Continued) 10-51

REMOVE FORWARD BOOST PUMP

18. Remove lockwire and **disconnect electrical connector (40)** from boost pump (41). Tag connector.
19. **Disconnect hoses (42 and 43)** from boost pump (41). Cap boost pump and plug hoses. Tag hoses.
20. **Remove bolt (44),** washer (45), nut (46).
21. **Remove four bolts (47)** and washers (48).
22. Maneuver boost pump (41) from pump bracket (49). **Remove boost pump.**
23. Cover access hole in tank (50) with barrier material (E80) and tape (E388).
24. Wipe up spilled fuel. Use cloths (E120).


41
40
42
43
48
47
FORWARD
49
50
45
44
46
20X34
D145-5823-SPA

25. Loosen locknut (51) with wrench on flats of tee (52). **Remove tee** from pump nipple (53). Plug tee.
26. Remove packing (54) and locknut (51). Cap nipple (53).


53
51
54
52
20X17
D145-5824-SPA

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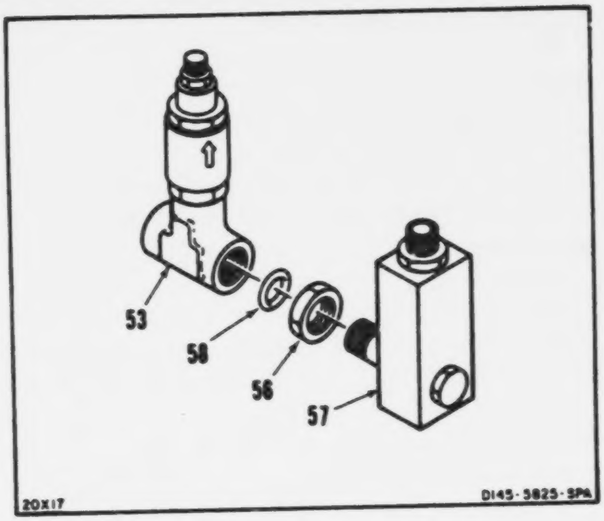
10-51 REMOVE MAIN FUEL TANK FORWARD BOOST PUMP AND CHECK VALVE (Continued) 10-51



REMOVE CHECK VALVE

27. Loosen locknut (56).
28. With wrench on flats of tee (53), **remove check valve (57)** from tee.
29. Remove packing (58). Plug tee.
30. **Remove locknut (56).**

FOLLOW-ON MAINTENANCE:

None

END OF TASK

best copy available

10-52 INSTALL MAIN FUEL TANK FORWARD BOOST PUMP AND CHECK VALVE 10-52

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 30 to 150 Inch-Pounds
Torque Wrench, 700 to 1600 Inch-Pounds

Materials:

Lockwire (E231)
Grease (E458)
Dry Cleaning Solvent (E162)
Cloths (E120)
Gloves (E186)

Parts:

Gaskets
Packings

Personnel Required:

Medium Helicopter Repairer
Inspector

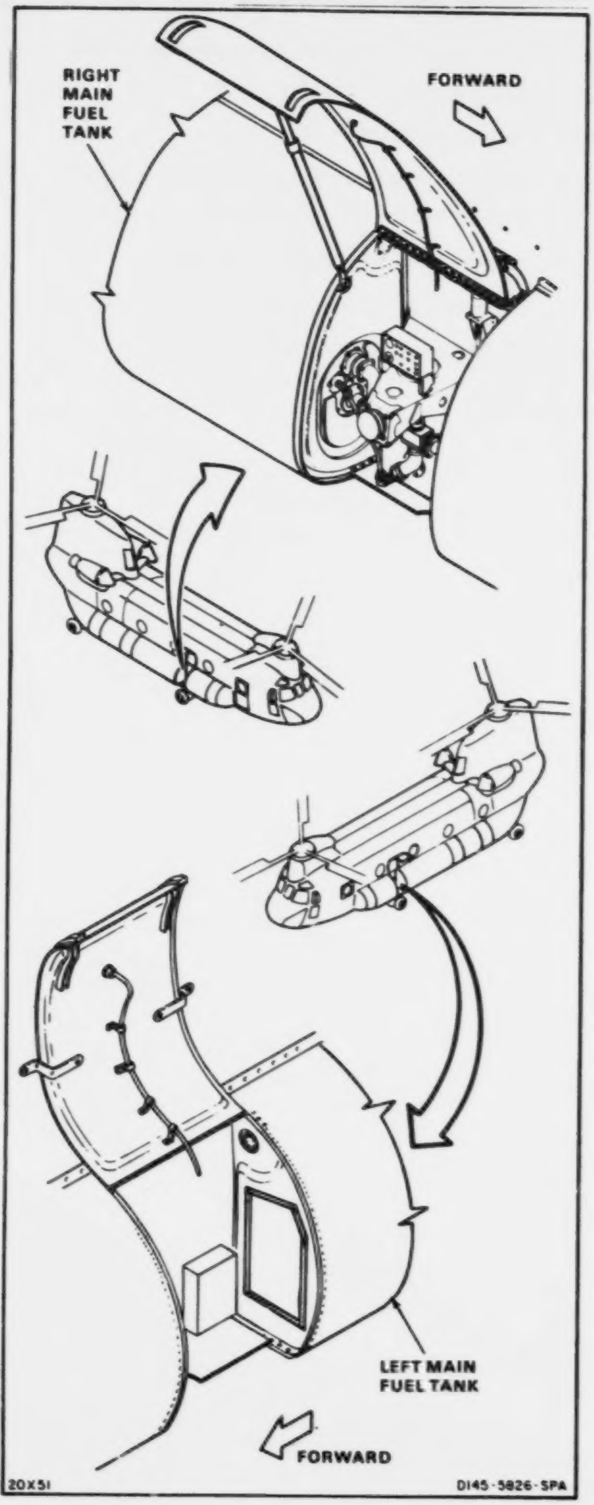
References:

TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


RIGHT MAIN FUEL TANK
FORWARD
LEFT MAIN FUEL TANK
FORWARD
20X51
D145-3826-SPA

GO TO NEXT PAGE

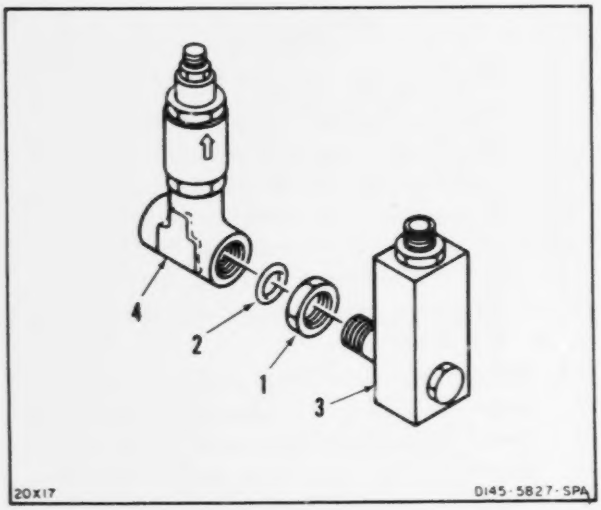
10-52 INSTALL MAIN FUEL TANK FORWARD BOOST PUMP AND CHECK VALVE (Continued) 10-52

NOTE

Procedure is same to install forward boost pump and check valve in No. 1 or No. 2 main fuel tank. Installation of No. 1 (left) boost pump and check valve is shown here.

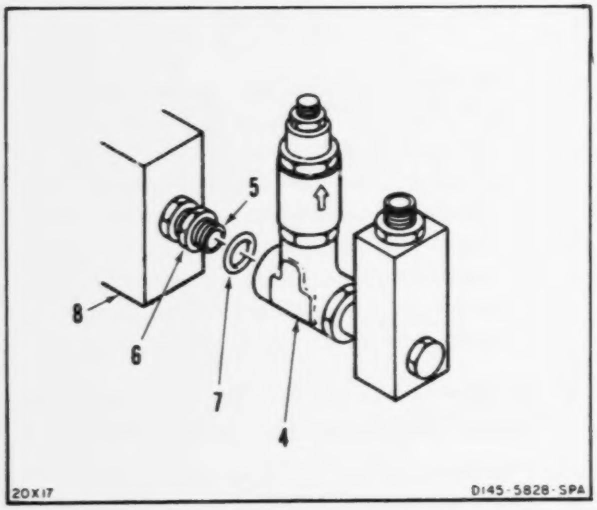
INSTALL FORWARD CHECK VALVE

1. Install locknut (1) and packing (2) on check valve (3).
2. Remove plug from tee (4). With wrench on flats of tee, **install tee on check valve (3).**
3. Align check valve (3) and tee (4) as shown. **Tighten locknut (1).**



INSTALL FORWARD BOOST PUMP

4. Remove cap from nipple (5). Install locknut (6) and packing (7) on nipple.
5. Remove plug from tee (4). Apply grease (E458) to thread of nipple (5). **Install tee on nipple.**
6. Align tee (4) and boost pump (8) as shown. Hold flats on tee with wrench. **Tighten locknut (6).**



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10-52 INSTALL MAIN FUEL TANK FORWARD BOOST PUMP AND CHECK VALVE (Continued) 10-52

WARNING

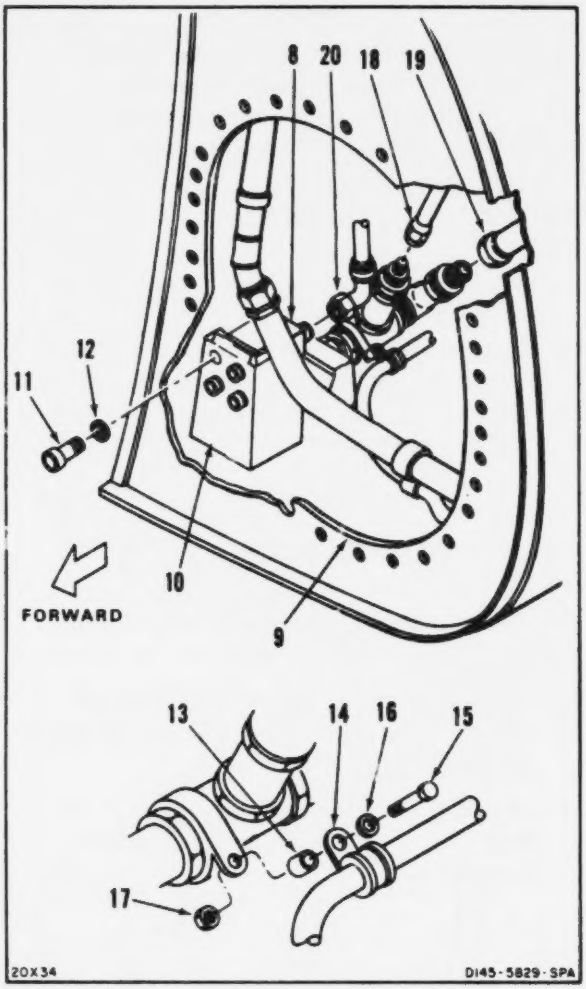
Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

7. Remove barrier material and tape from access hole in tank (9). Clean tape residue from tank. Use dry cleaning solvent (E162) and cloths (E120). Wear goggles to protect eyes. Wear gloves (E186).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

8. **Position boost pump (8)** on bracket (10). **Install four bolts (11)** and washers (12).
9. **Position spacer (13) and cable clamp (14). Install bolt (15),** washer (16), and nut (17).
10. Remove caps from boost pump (8) and plugs and tags from hoses (18 and 19). **Connect hoses** to pump. **Torque hose connector (19) to 1125 inch-pounds.**
11. **Connect electrical connector (20)** to boost pump (8). Remove tag. Lockwire connector to pump. Use lockwire (E233).



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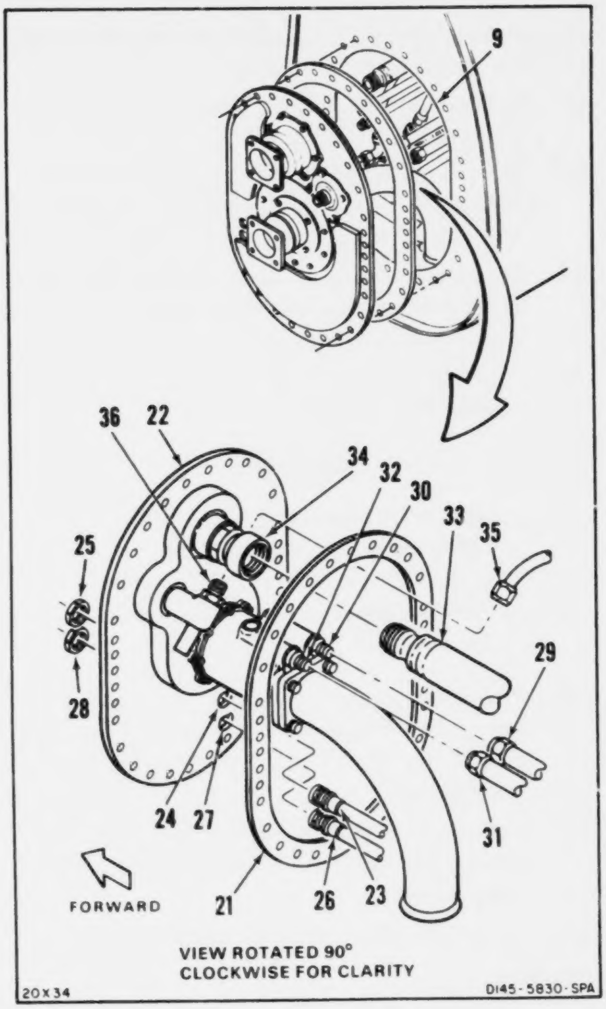
10-52 INSTALL MAIN FUEL TANK FORWARD BOOST PUMP AND CHECK VALVE (Continued) 10-52

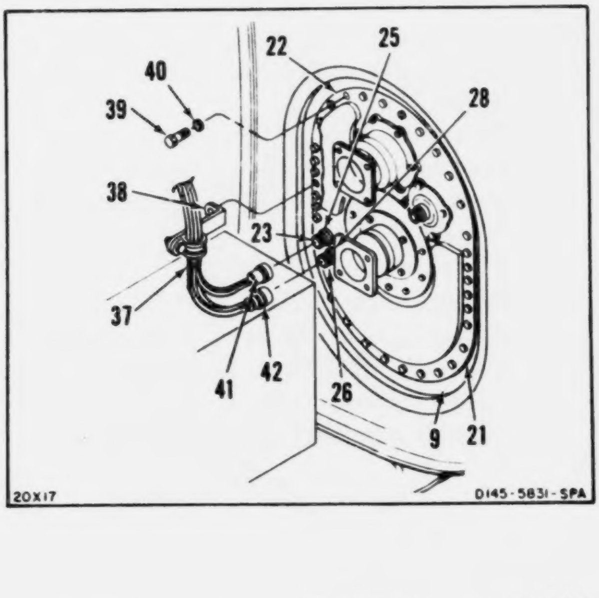
INSTALL TANK FORWARD ACCESS DOOR

12. **Position gasket (21) and access door (22)** next to access hole in tank (9). Remove tag from electrical receptacle (23). Check that packing is installed on receptacle. **Insert receptacle through hole (24).** Check that packing is installed on receptacle, install and **hand tighten locknut (25)** on receptacle.
13. Remove tag from electrical receptacle (26). Insert receptacle through hole (27). Check that packing is installed on receptacle. Install and **hand tighten locknut (28)** on receptacle.
14. Remove tag and plug from hose (29) and cap from nipple (30). **Connect hose** to nipple.
15. Remove tag and plug from hose (31) and cap from nipple (32). **Connect hose** to nipple.
16. Remove cap from hose (33) and plug from ring nut (34). **Connect ring nut** to hose. **Tighten ring nut** with a strap wrench until it is bottomed against hose fitting. Check that ring nut fits against hose fitting with a gap of no more than 0.050 inch.
17. Remove tag and plug from hose (35) and cap from nipple (36). **Connect hose to nipple.**



VIEW ROTATED 90° CLOCKWISE FOR CLARITY

18. **Position gasket (21) and access door (22)** against tank (9).
19. **Position electrical cable (37) and bracket (38)** as shown. **Install 30 bolts (39)** and washers (40). **Torque bolts to 70 inch-pounds.**
20. **Tighten two locknuts (25 and 28). Torque to 100 to 125 inch-pounds and lockwire (E231).**
21. **Connect electrical plug (41)** to receptacle (23). Remove tag.
22. **Connect electrical plug (42)** to receptacle (26). Remove tag.
23. Lockwire connectors (41 and 42). Use lockwire (E231).



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10-52 INSTALL MAIN FUEL TANK FORWARD BOOST PUMP AND CHECK VALVE (Continued) 10-52

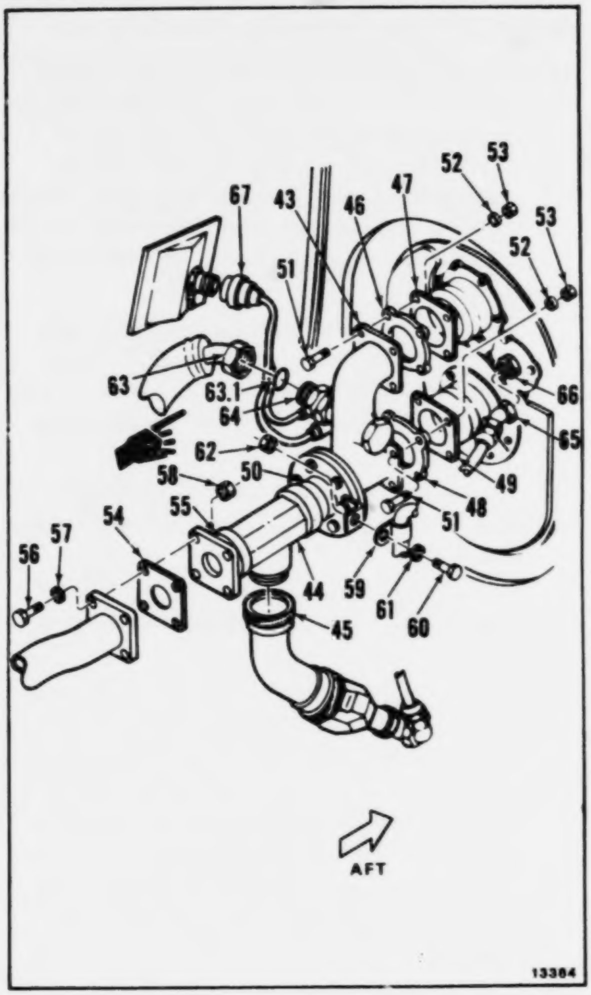
24. Position manifold (43) and tee (44) as a unit. Hand tighten ring nut (45).
25. Position gasket (46) on fitting (47). Position gasket (48) on fitting (49).
26. Slide manifold adapter fitting (50) aft from tee (44). Install eight bolts (51), washers (52), and nuts (53).
27. Position gasket (54). Slide adapter (55) forward. Install four bolts (56), washers (57), and nuts (58).
28. Position hose clamp (59). Install bolt (60), washer (61), and nut (62).

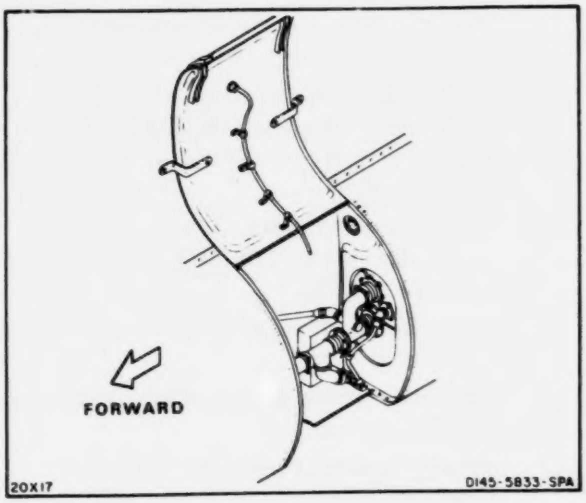
CAUTION

When connecting fuel hoses to forward access panel, do not allow fittings to turn. Otherwise, fittings can fail and cause fuel blockage.

29. Remove plug from hose (63) and cap from fitting (64). Install conical seal (63.1) in hose (63) fitting. Hold fitting with wrench. **Connect hose.**
30. Remove plug from hose (65) and cap from fitting (66). Hold fitting with wrench. **Connect hose.**
31. **Connect electrical connector (67).**

INSPECT





FOLLOW-ON MAINTENANCE:

Perform vent system flow test (Task 10-118).
Test main fuel tank (Task 10-22).
Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).
Refuel helicopter (Task 1-51).
Bleed fuel system (Task 10-121).
Perform operational check of appropriate fuel system (TM 55-1520-240-T).
Inspect for leaks (Task 10-4).
Close forward landing gear panel (Task 2-2).

END OF TASK

10-53 REMOVE MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE 10-53

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Wrench, Open End, 1 1/2-Inch
Wrench, Open End 1 1/8-Inch
Strap Wrench

Materials:
Barrier Material (E80)
Tape (E388)
Paper Tags (E264)
Cloths (E135)

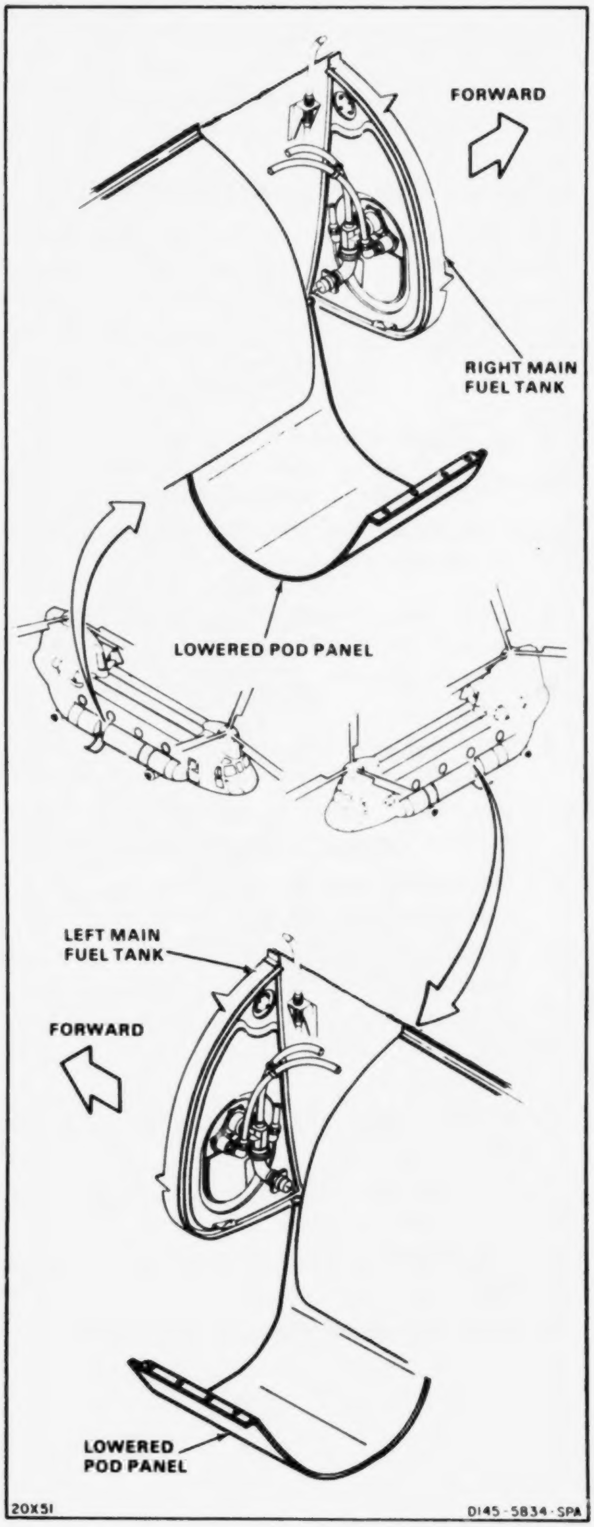
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Aft Intertank Pod Panel Lowered (Task 2-185)
Main Tank Defueled (Task 10-34 or 10-35)
Main Fuel Tank Purged (Task 10-2)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
RIGHT MAIN FUEL TANK
LOWERED POD PANEL
LEFT MAIN FUEL TANK
FORWARD
LOWERED POD PANEL
20X51
D145-5834-SPA

GO TO NEXT PAGE

10-53 REMOVE MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE (Continued) 10-53

NOTE

Procedure is same to remove aft boost pump and check valve from No. 1 or No. 2 main fuel tank. Removal of No. 1 (left) boost pump and check valve is shown here.

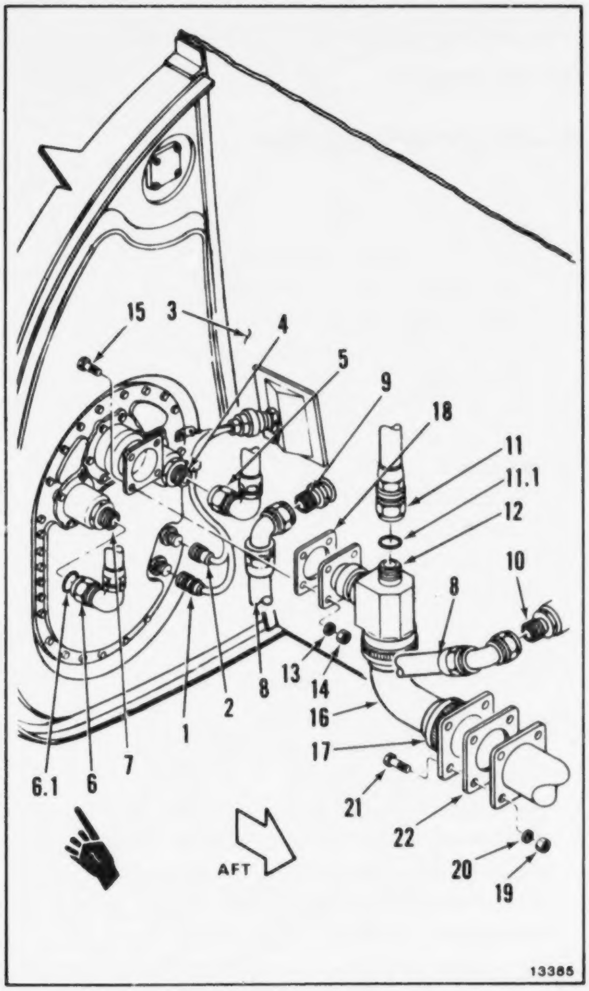
REMOVE TANK AFT ACCESS DOOR

1. Tag two connectors (1 and 2). Remove lockwire and **disconnect two connectors.** Tape wires and connectors to fuselage (3) for temporary stowage. Use tape (E388).

CAUTION

When disconnecting fuel hoses from aft access door, do not allow fittings to turn. Otherwise, fittings can fail and cause fuel blockage.

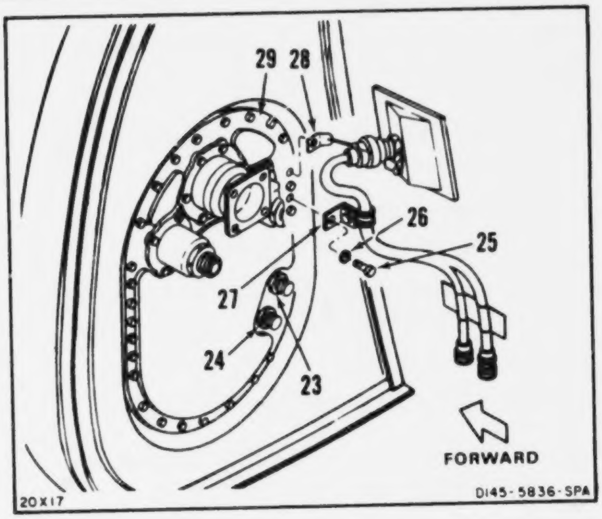
2. Hold fitting (4) with wrench. **Disconnect vent hose (5).** Plug hose and cap fitting. Tape hose to fuselage (3) for stowage. Tag hose.
3. Hold fitting (7) with wrench. **Disconnect hose (6).** Remove conical seal (6.1) from hose fitting. Plug hose and cap fitting. Tape hose to fuselage (3) for stowage. Tag hose.
4. **Remove hoses (8).** Plug hose and cap adapters (9 and 10). Tag hose.
5. Hold adapter (12) with wrench and **disconnect hose (11).** Remove conical seal (11.1) from hose fitting. Plug hose and cap adapter (12). Tape hose to fuselage (3) for stowage. Tag hose.
6. **Remove four** nuts (14), washers (13), and **bolts (15).**
7. **Slide elbow (16) aft into union adapter (17).** Remove gasket (18).
8. **Remove four** nuts (19), washers (20), and **bolts (21).**
9. **Remove elbow (16)** and gasket (22).



GO TO NEXT PAGE

10-53 REMOVE MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE (Continued)

10. Remove lockwire and **loosen two locknuts (23 and 24).**
11. **Remove 30 bolts (25)** and washers (26).
12. **Remove two brackets (27 and 28).**
13. **Move access door (29) from tank for access to inside of door.**


29
28
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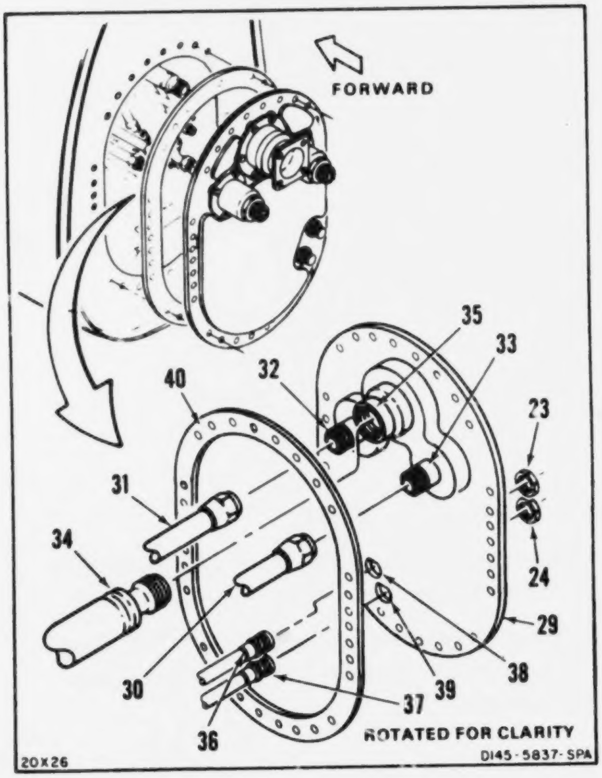
FORWARD
20X17
D145-5836-SPA

REMOVE BOOST PUMP

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

14. Tag and **disconnect two hoses (30 and 31).** Plug hoses and cap fittings (32 and 33).
15. **Disconnect hose (34).** Cap hose and plug ring nut (35).
16. **Remove two locknuts (23 and 24).**
17. **Guide two receptacles (36 and 37)** from holes (38 and 39) in access door (29).
18. **Remove access door (29)** and gasket (40).


FORWARD
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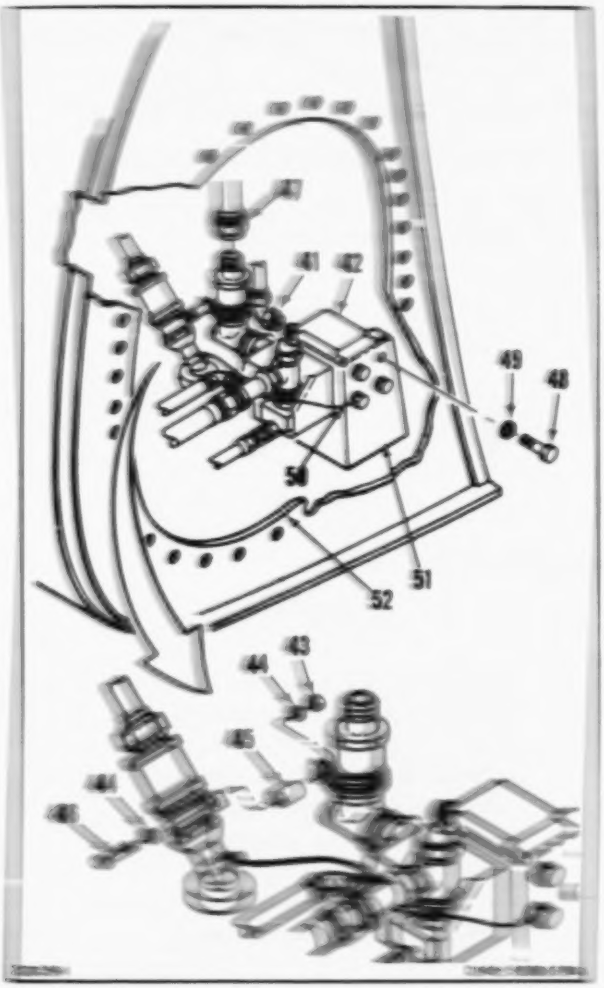
36
ROTATED FOR CLARITY
20X26
D145-5837-SPA

GO TO NEXT PAGE

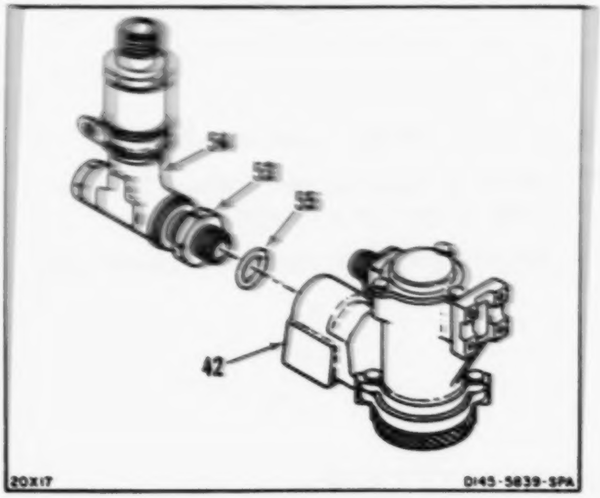
10-53 REMOVE MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE (Continued)

19. Remove lockwire and **disconnect electrical connector (41)** from boost pump (42).
20. **Remove** nut (43), two washers (44), spacer (45) and **screw (46).**
21. **Disconnect hose connection (47).** Cap boost pump (42) and plug hose.
22. **Remove four bolts (48)** and washers (49) and electrical lead (50).
23. Maneuver boost pump (42) from pump bracket (51). **Remove boost pump.**
24. Cover access hole in tank (52) with barrier material (E80) and tape (E388).
25. Wipe up spilled fuel. Use cloths (E135).



REMOVE CHECK VALVE

26. **Loosen locknut (53).** With wrench on flats of check valve (54), **remove check valve.**
27. Remove packing (55) and locknut (53) from valve (54). Cap valve and plug boost pump (42).



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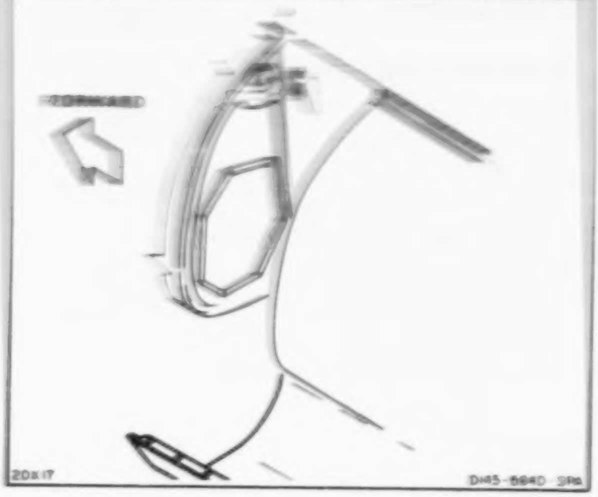
10-83 REMOVE MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE (Continued)

FOLLOW-ON MAINTENANCE

None


FORWARD
20x17
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END OF TASK

10-[illegible] INSTALL MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 30 to 150 Inch-Pounds
Torque Wrench, 700 to 1600 Inch-Pounds
Wrench, Open End, 1 1/2-Inch
Wrench, Open End, 1 7/8-Inch

Materials:
Lockwire (E233)
Grease (E458)
Dry Cleaning Solvent (E162)
Gloves (E186)

Parts:
Gaskets
Packing

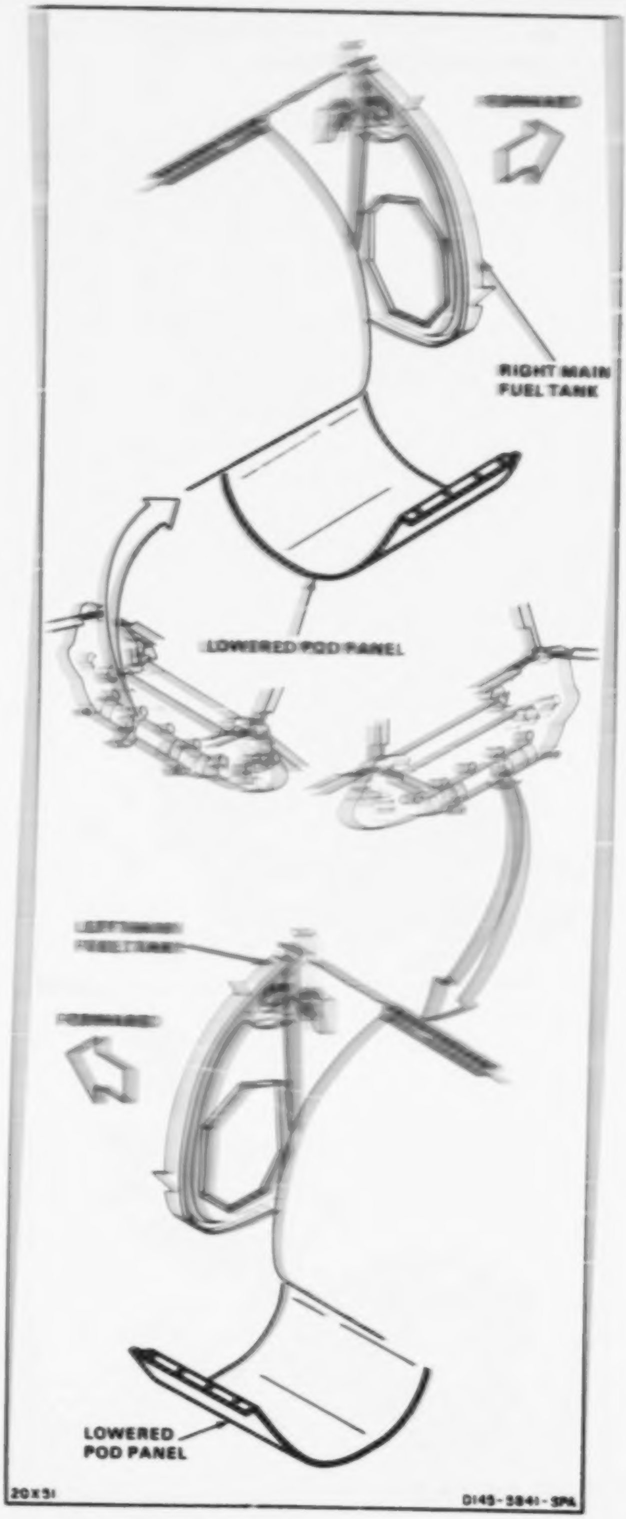
Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Inspector

References:
TM 55-1520-240-23

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
RIGHT MAIN FUEL TANK
LOWERED POD PANEL
LEFT MAIN FUEL TANK
FORWARD
LOWERED POD PANEL
20X31
D145-3841-3PA

GO TO NEXT PAGE

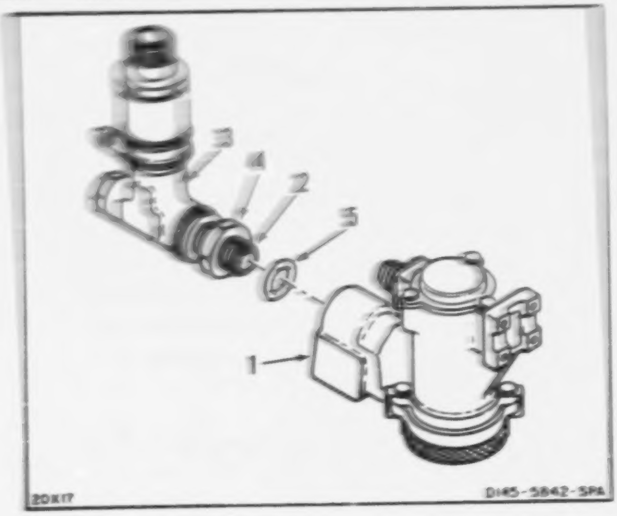
10-94 INSTALL MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE (Continued)

NOTE

Procedure is same to install aft boost pump and check valve in No. 1 or No. 2 main fuel tank. Installation of No. 1 (left) boost pump and check valve.

INSTALL CHECK VALVE

1. Remove plug from boost pump (1) and cap from nipple (2) of check valve (3).
2. Install locknut (4) and packing (5) on check valve (3). Apply grease (E458) to thread of nipple (2). **Install check valve** on fuel boost pump (1).
3. **Align check valve (3)** with boost pump (1) as shown. **Tighten locknut (4).**



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10-54 INSTALL MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE (Continued) 10-54

INSTALL AFT BOOST PUMP

WARNING

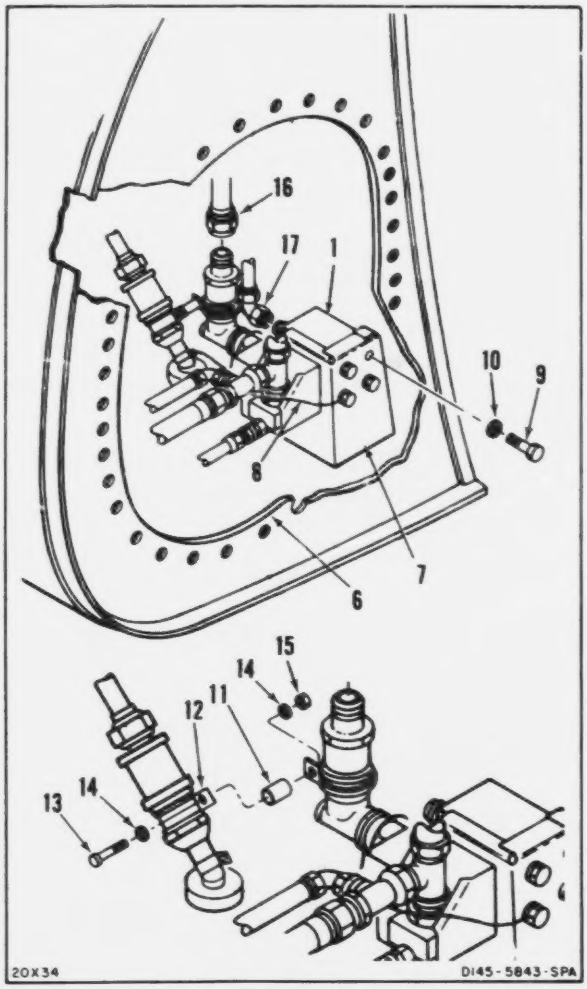
Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

4. Remove barrier material and tape from access hole in tank (6). Clean tape residue from face of tank. Use dry cleaning solvent (E162) and cloths (E120). Wear goggles to protect eyes. Wear gloves (E186).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

5. **Position boost pump (1)** on bracket (7). Position electrical lead (8) on bracket. **Install four bolts (9)** and washers (10).
6. **Position** spacer (11) and **cable clamp (12). Install bolt (13),** washers (14), and nut (15).
7. Remove caps from boost pump (1) and plugs from tube (16). **Connect tube** to boost pump. **Torque tube connector to 1125 inch-pounds.**
8. **Connect electrical connector (17)** to boost pump (1). Lockwire connector to pump. Use lockwire (E233).



INSPECT

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10-54 INSTALL MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE (Continued) 10-54

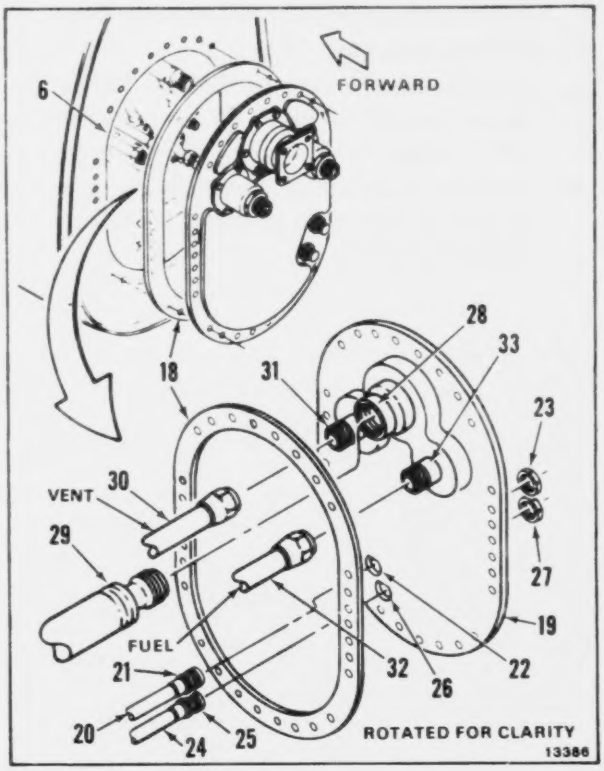
INSTALL TANK AFT ACCESS DOOR

9. **Position gasket (18) and access door (19)** next to access hole in tank (6).
10. Position electrical cable (20). **Insert receptacle (21) through hole (22). Check that packing is installed on receptacle. Install and hand tighten locknut (23)** on receptacle.
11. Position electrical cable (24). **Insert receptacle (25) through hole (26). Check that packing is installed on receptacle. Install and hand tighten locknut (27)** on receptacle.
12. Remove plug from ring nut (28) and cap from hose (29). **Connect hose** to ring nut. **Tighten ring nut** with a strap wrench until it is bottomed against hose fitting. Check that ring nut fits against hose fitting with a gap of no more than 0.050 inch.

CAUTION

Incorrect connection of fuel and vent hoses will not be evident during gravity refueling, only during pressure refueling. Airframe damage will occur.

13. Remove tag and plug from vent hose (30) and cap from fitting (31). **Connect hose** to fitting.
14. Remove tag and plug from fuel hose (32) and cap from fitting (33). **Connect hose** to fitting.



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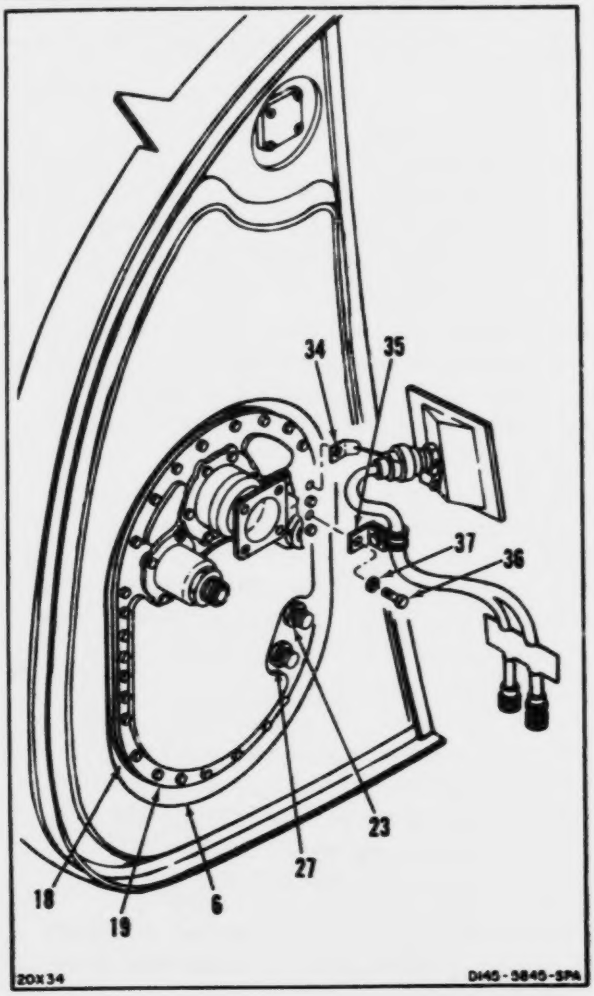
10-54 INSTALL MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE (Continued) 10-54

15. **Position gasket (18) and access door (19) against tank (6).**
16. **Position two brackets (34 and 35)** as shown. **Install 30 bolts (36)** and washers (37). **Torque bolts to 70 inch-pounds.**
17. **Tighten locknuts (23 and 27). Torque to 100 to 125 inch pounds. Install lockwire (E231).**



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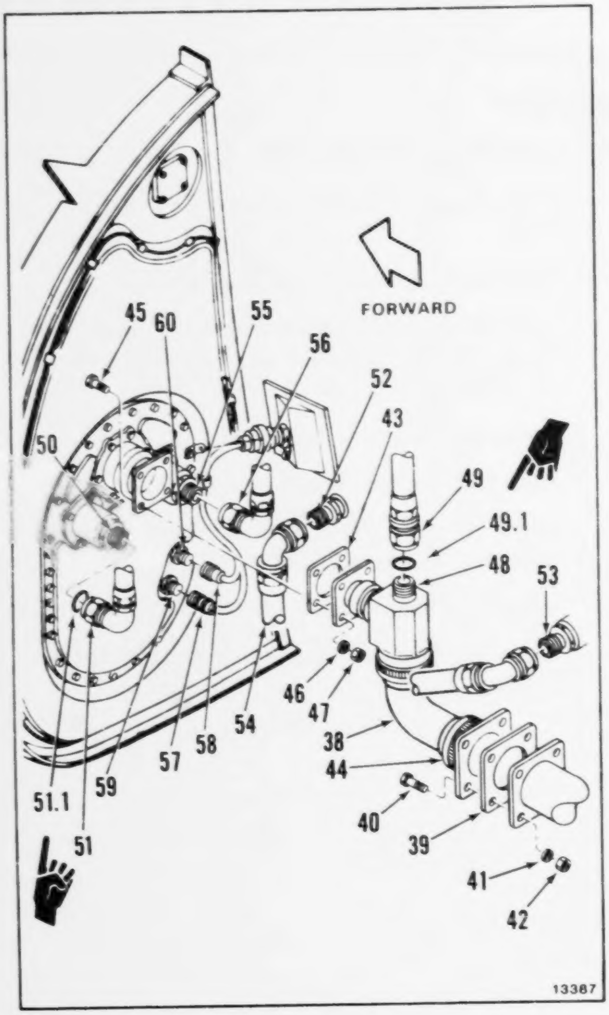
10-54 INSTALL MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE (Continued) 10-54

18. **Position elbow (38)** and gasket (39). **Install four bolts (40),** washers (41), and nuts (42).
19. **Position gasket (43). Slide elbow (38) forward** from union adapter (44). **Install four bolts (45),** washers (46), and nuts (47).

CAUTION

When connecting fuel hoses to aft access door, do not allow fittings to turn. Otherwise, fitting can fail and cause blockage.

20. Remove cap from adapter (48). Remove tape and plug from hose (49). Install conical seal (49.1) in hose fitting. Hold adapter with wrench. **Connect hose.**
21. Remove cap from adapter (50). Remove tape and plug from hose (51). Install conical seal (51.1) in hose fitting. Hold adapter with wrench. **Connect hose.**
22. Remove caps from two adapters (52 and 53) and plugs from two connectors on hose (54). **Position and connect hose to adapters.**
23. Remove cap from adapter (55). Remove tape and plug from hose (56). **Connect hose** to adapter.
24. Remove tape from two electrical connectors (57 and 58).
25. **Connect connector (57)** to receptacle (59). Remove tag.
26. **Connect connector (58)** to receptacle (60). Remove tag.



INSPECT

GO TO NEXT PAGE

10-54 INSTALL MAIN FUEL TANK AFT BOOST PUMP AND CHECK VALVE (Continued) 10-54

INSPECT

FOLLOW-ON MAINTENANCE:

Perform vent system flow test (Task 10-118).

Test main fuel tank (Task 10-22).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

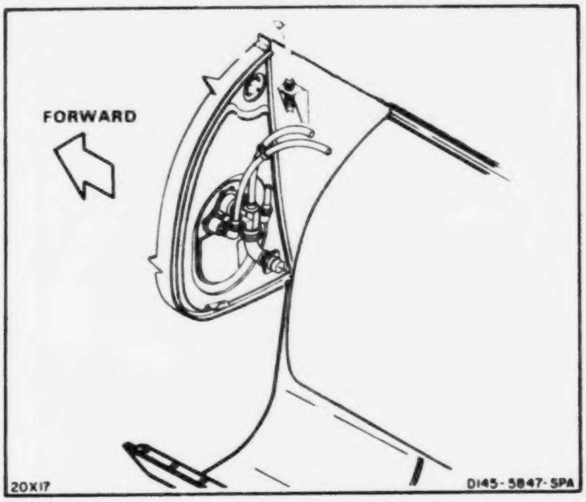
Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of appropriate fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-4).

Close and latch aft intertank pod panel (Task 2-188).



END OF TASK

10-55 REMOVE MAIN TANK (NO. 1 SYSTEM) FUEL LEVEL SHUTOFF VALVE 10-55

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Strap Wrench

Materials:

Cloths (E135)

Barrier Material (E80)

Tape (E388)

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Helicopter Grounded (Task 1-29)

Forward Left Landing Gear Access Door Opened (Task 2-2)

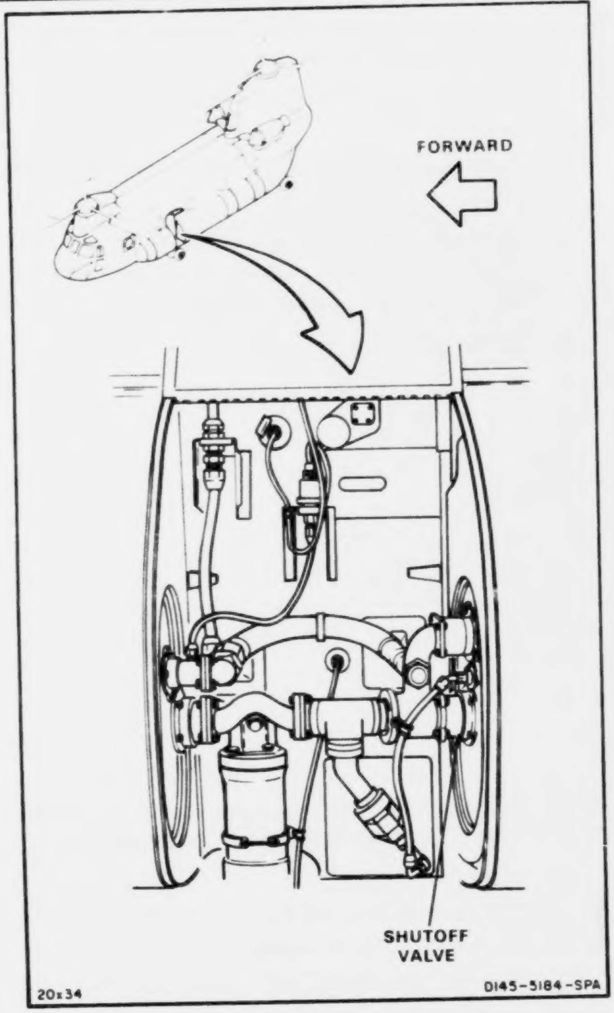
All Tanks On Left Side Of Helicopter Defueled And Both Crossover Valves Closed (Task 10-34 or 10-35)

Grounded Container, 2 Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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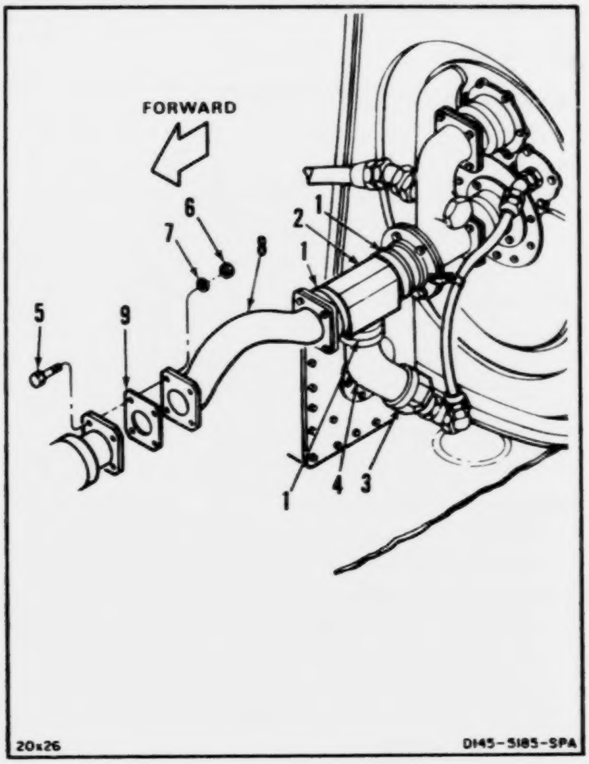
10-55 REMOVE MAIN TANK (NO. 1 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-55

1. Loosen three ring nuts (1) on tee (2). Use strap wrench.
2. Loosen ring nut (3) on elbow (4). Use strap wrench.
3. Remove four bolts (5), nuts (6), and washers (7).
4. **Remove tube (8), tee (2) and elbow (4).** Catch spilled fuel. Use grounded container. Separate tube and elbow from tee.
5. Remove gasket (9).


FORWARD
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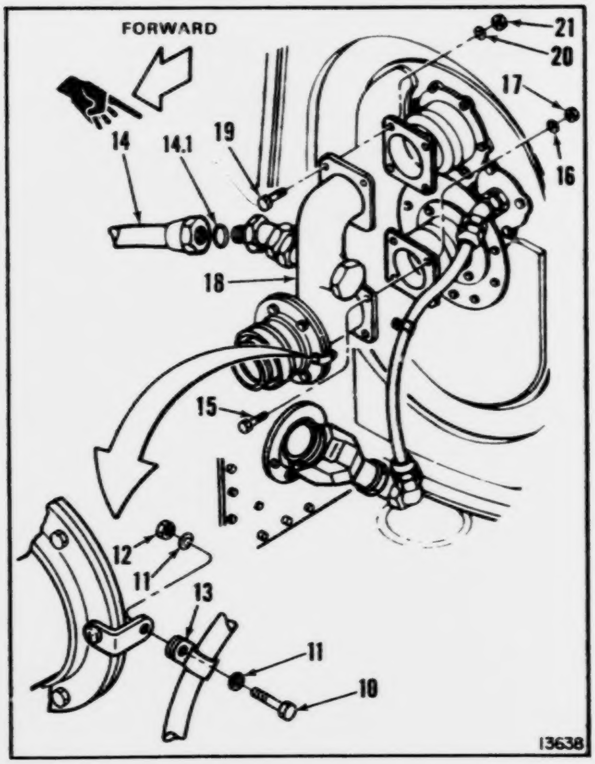
20x26
D145-5185-SPA

6. Remove bolt (10), two washers (11), and nut (12) from hose clamp (13). **Disconnect clamp.**
7. **Disconnect hose (14). Remove conical seal (14.1) from hose fitting.** Plug hose.
8. Remove four bolts (15), washers (16), and nuts (17).
9. Support manifold (18). **Remove** four bolts (19), washers (20), nuts (21), and **manifold.**


FORWARD
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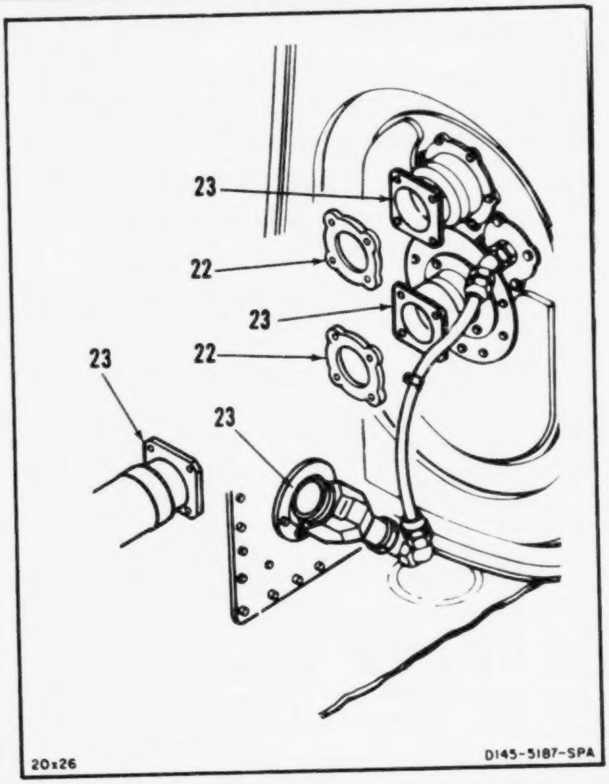
GO TO NEXT PAGE

10-55 REMOVE MAIN TANK (NO. 1 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-55

10. Remove two gaskets (22). Plug holes in four fittings (23).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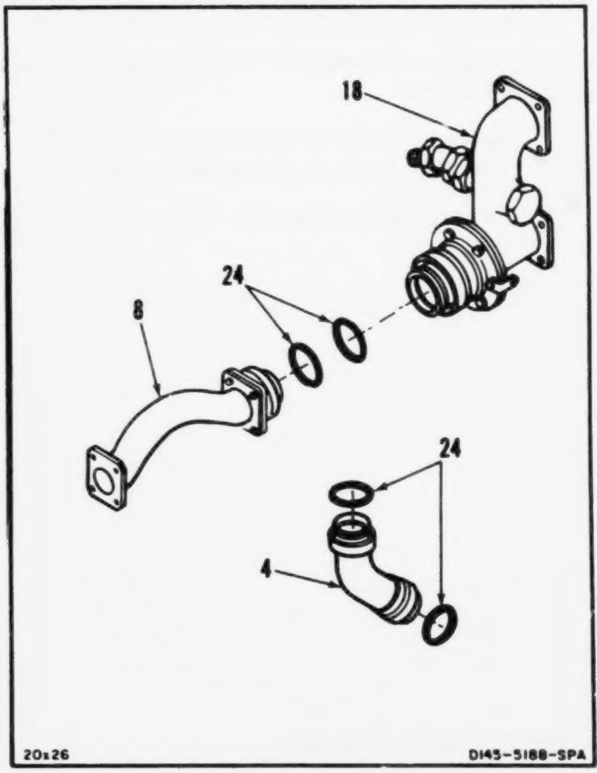
11. Remove four packings (24) from elbow (4), tube (8), and manifold (18).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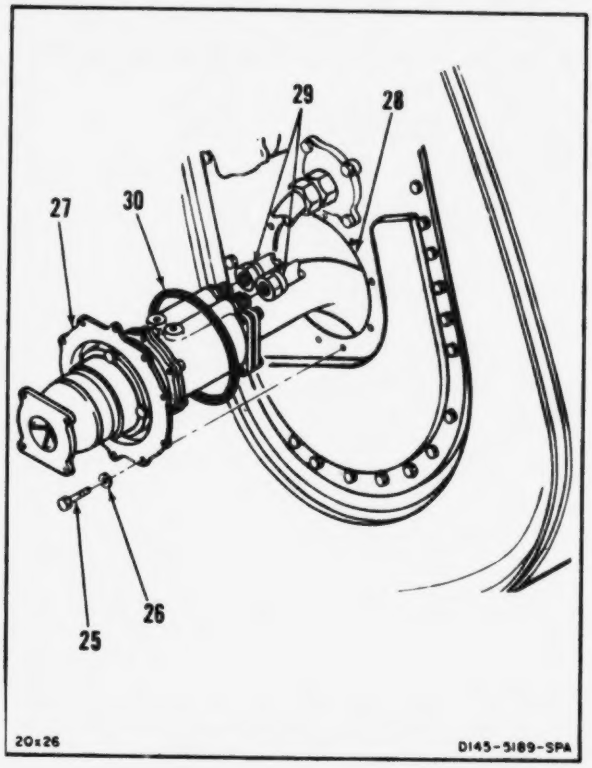
GO TO NEXT PAGE

10-55 REMOVE MAIN TANK (NO. 1 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-55

12. Remove 10 bolts (25) and washers (26).
13. Withdraw fuel valve (27) from tank (28) for access to two hose connections (29). **Disconnect hose connections.**
14. **Maneuver fuel valve (27) from tank (28).** Seal hole in tank. Use barrier material (E80) and tape (E388).
15. Remove packing (30) from mounting flange of fuel valve (27).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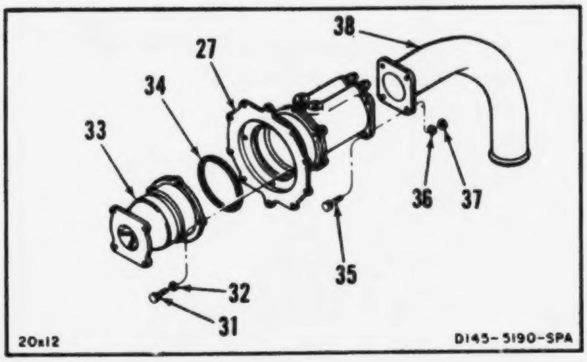
D145-5189-SPA

16. Remove four bolts (31) and washers (32). **Remove fitting (33)** and packing (34) from valve (27).
17. Remove four bolts (35), washers (36) and nuts (37). **Remove tube (38).**
18. Clean up spilled fuel. Use cloths (E135).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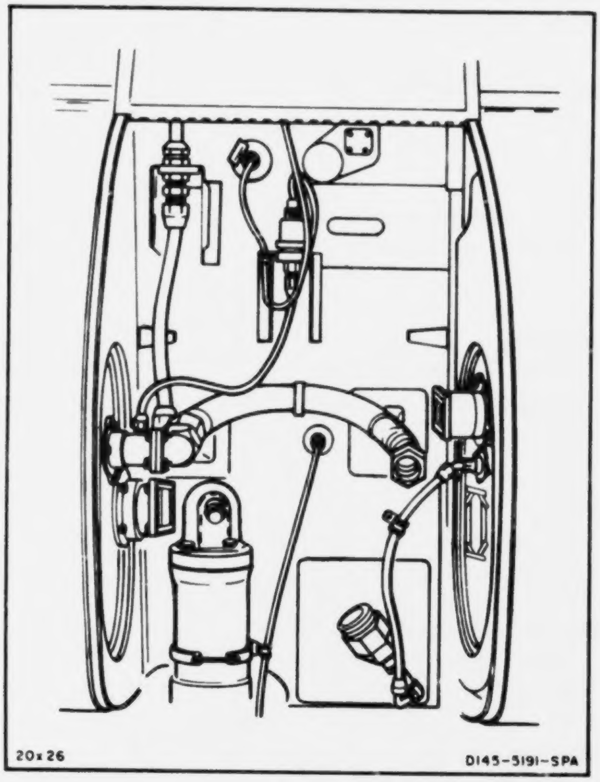
10-55 REMOVE MAIN TANK (NO. 1 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-55

FOLLOW-ON MAINTENANCE:

None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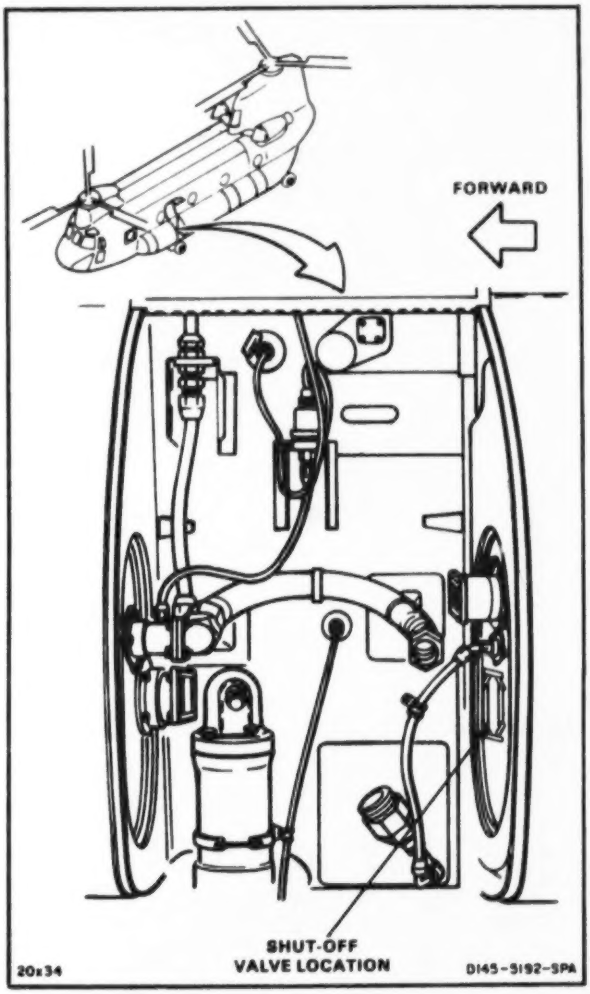
END OF TASK

10-56 INSTALL MAIN TANK (NO. 1 SYSTEM) FUEL LEVEL SHUTOFF VALVE 10-56



INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Cloths (E135)
Dry Cleaning Solvent (E162)
Gloves (E186)

Parts:
Packings
Gaskets

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

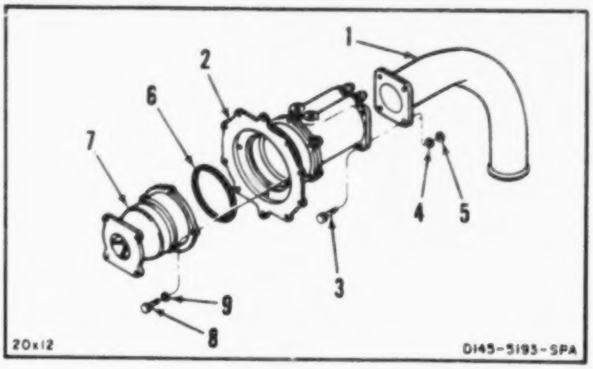
WARNING

All regulations and instructions for handling fuels shall be strictly observed.

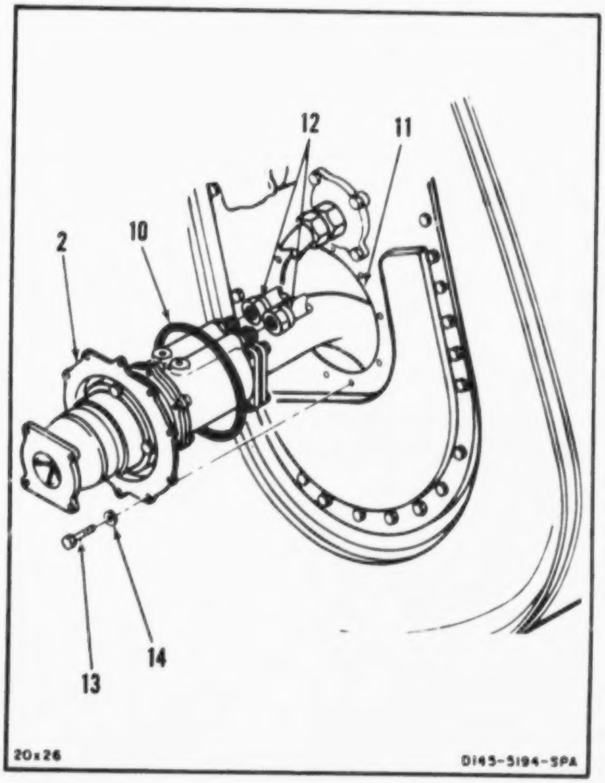
GO TO NEXT PAGE

10-56 INSTALL MAIN TANK (NO. 1 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-56

1. **Position tube (1)** on valve (2). **Install four bolts (3)** washers (4) and nuts (5).
2. Install packing (6) on breakaway fitting (7). **Position fitting** on valve (2). **Install four bolts (8)** and washers (9).



3. Install packing (10) on flange of valve (2).



WARNING

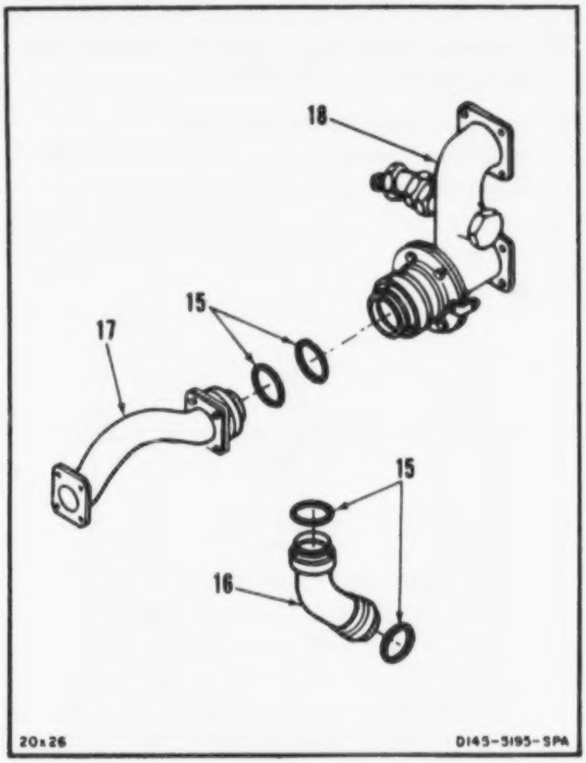
Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

4. Remove barrier material and tape from hole in tank (11). Clean tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).
5. Pull two hoses (12) through hole in tank (11) to outside of tank. Maneuver valve (2) into position next to hole in tank (11). **Connect two hoses (12)** to valve.
6. **Position valve (2)** against face of tank. **Install 10 bolts (13)** and washers (14).

GO TO NEXT PAGE

10-56 INSTALL MAIN TANK (NO. 1 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-56

7. Install four packings (15) on elbow (16), tube (17), and manifold (18).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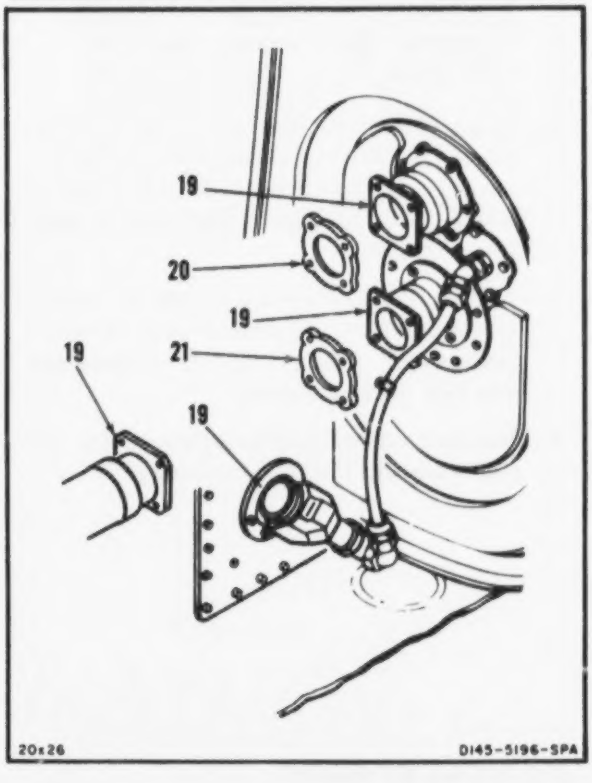
8. Remove plugs from four fittings (19). Position two gaskets (20 and 21).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D145-5196-SPA

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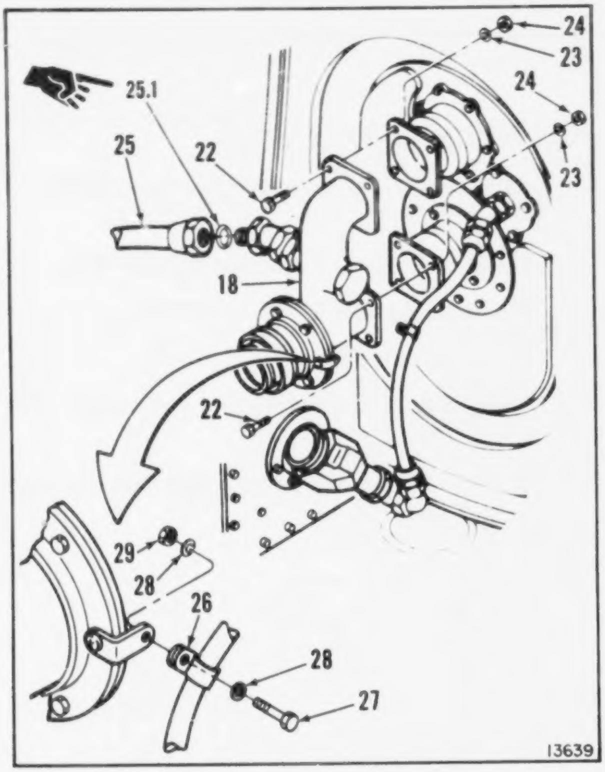
10-56 INSTALL MAIN TANK (NO. 1 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-56

9. **Position manifold (18). Install eight bolts (22),** washers (23), and nuts (24).
10. Remove plug from hose (25). Install conical seal (25.1). **Install hose on manifold (18).**
11. **Position hose clamp (26). Install bolt (27),** two washers (28), and nut (29).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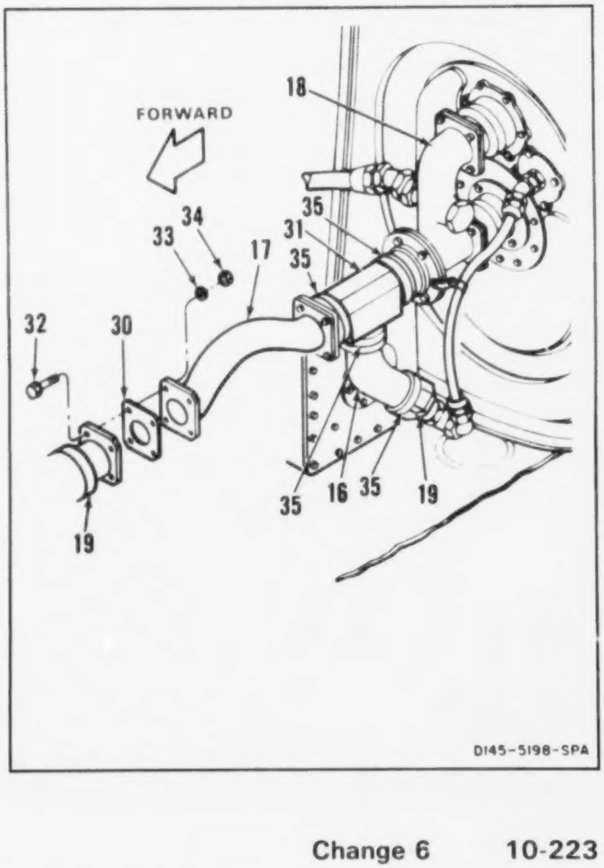
13639

12. Position gasket (30).
13. **Maneuver tube (17), tee (31), and elbow (16)** into position on manifold (18) and fittings (19).
14. **Install four bolts (32),** washers (33), and nuts (34).
15. **Tighten four ring nuts (35). Use strap wrench.**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10-56 INSTALL MAIN TANK (NO . 1 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-56

FOLLOW-ON MAINTENANCE:

Perform test of pressure refueling system (Task 10-119).

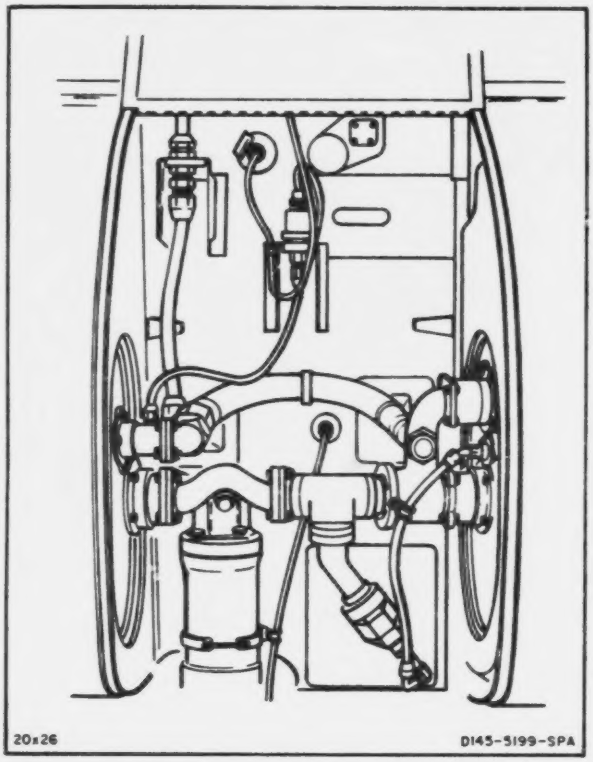
Refuel left side of helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Check for leaks (10-4).

Perform operational check of fuel system (TM 55-1520-240-T).

Close and latch forward landing gear access panel (Task 2-2).



END OF TASK

10-57 REMOVE MAIN TANK (NO. 2 SYSTEM) FUEL LEVEL SHUTOFF VALVE 10-57

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Wrench, Open End, 1-1/2-Inch

Materials:
Cloths (E135)
Barrier Material (E80)
Tape (E388)

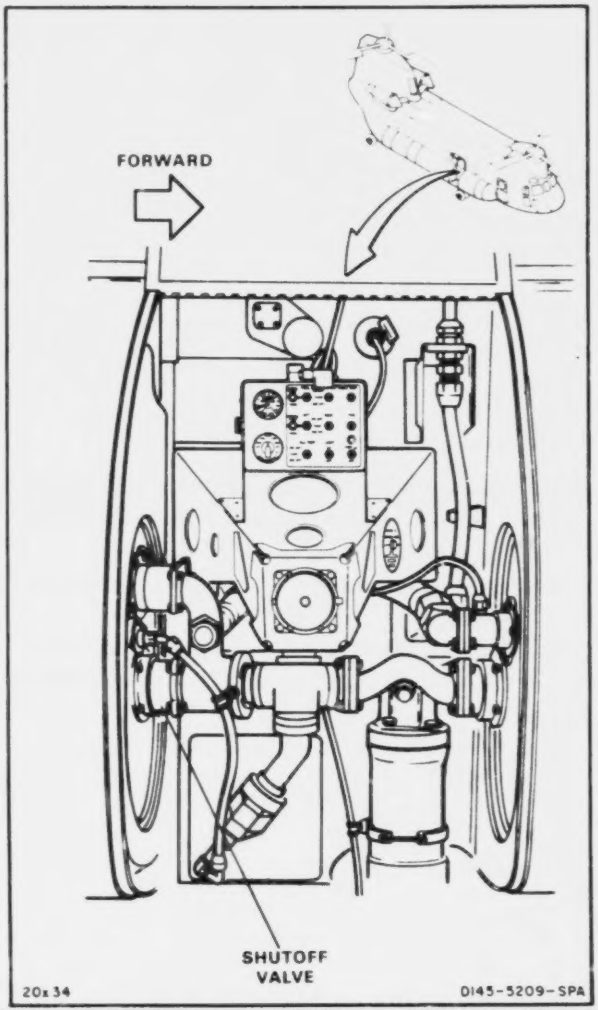
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Right Landing Gear Access Door Opened (Task 2-2)
All Tanks On Right Side Of Helicopter Defueled And Both Crossover Valves Closed (Task 10-34 or 10-35)
Refueling Adapter Removed (Task 10-87)
Grounded Container, Two Quart

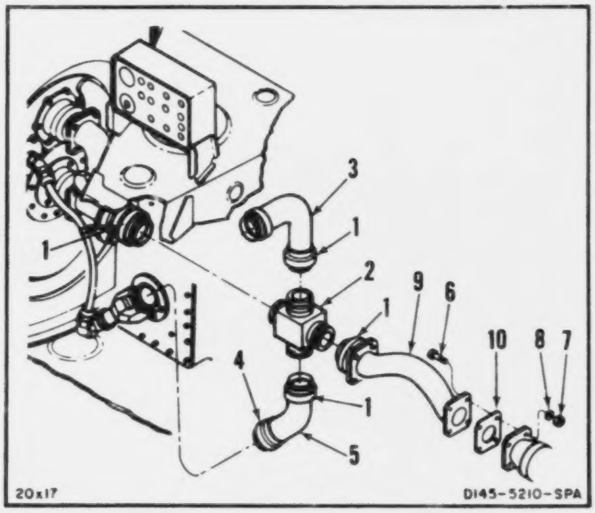
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



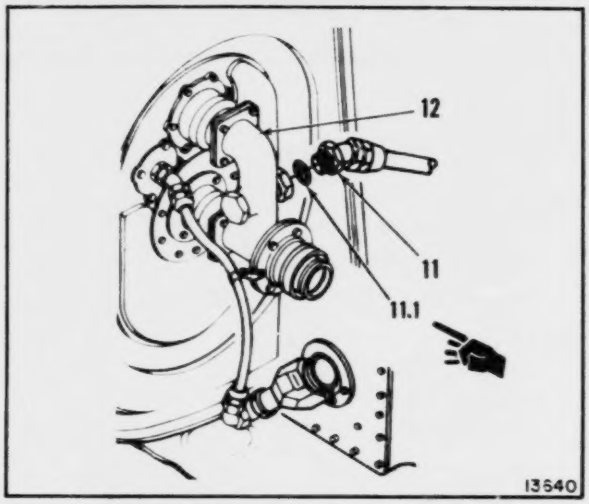
1. Loosen four ring nuts (1) on cross (2).
2. **Remove elbow (3).**
3. Loosen ring nut (4) on elbow (5).
4. Remove four bolts (6), nuts (7), and washers (8).
5. **Maneuver cross (2), elbow (5), tube (9) and gasket (10) from helicopter.** Use grounded container to catch spilled fuel. Separate elbow and tube from cross.



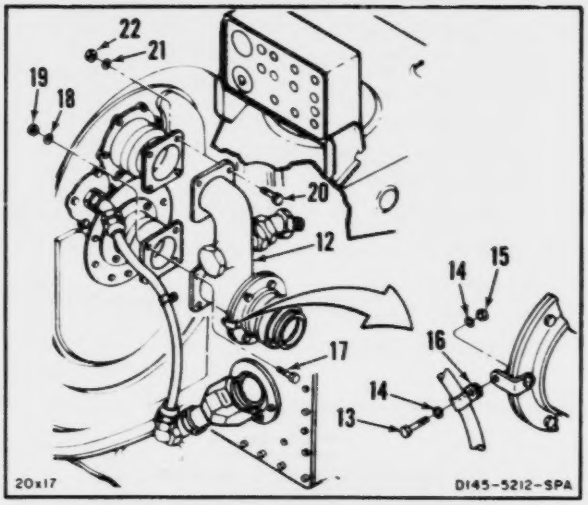
GO TO NEXT PAGE

10-57 REMOVE MAIN TANK (NO. 2 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-57

6. **Disconnect hose connector (11)** from manifold (12). Remove conical seal (11.1) from hose fitting. Plug hose.


12
11
11.1
13640

7. Remove bolt (13), two washers (14) and nut (15) from hose clamp (16). Disconnect hose clamp.
8. Remove four bolts (17), washers (18), and nuts (19).
9. Support manifold (12). **Remove** four bolts (20), washers (21), nuts (22) and **manifold.**


22
21
19
18
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14
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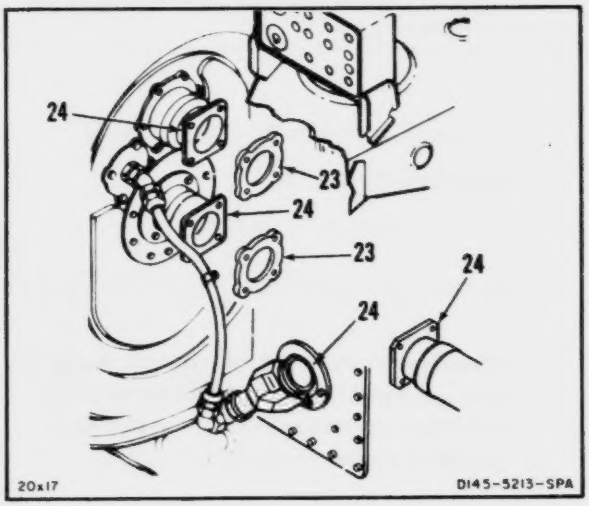
16
17
14
13
20x17
D145-5212-SPA

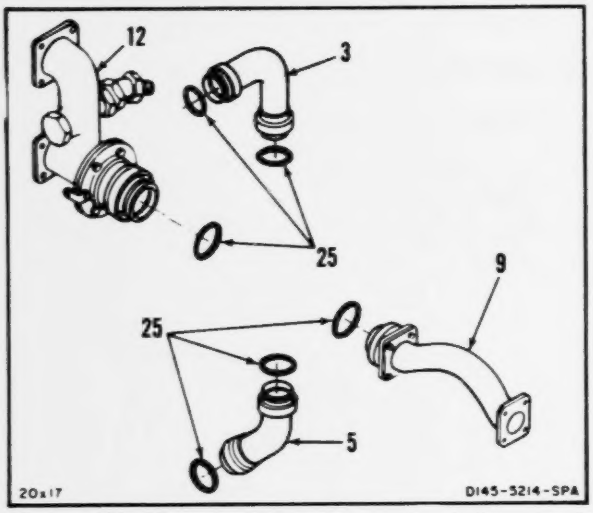
10. Remove two gaskets (23). Plug holes in four fittings (24).


24
23
24
23
24
24
20x17
D145-5213-SPA

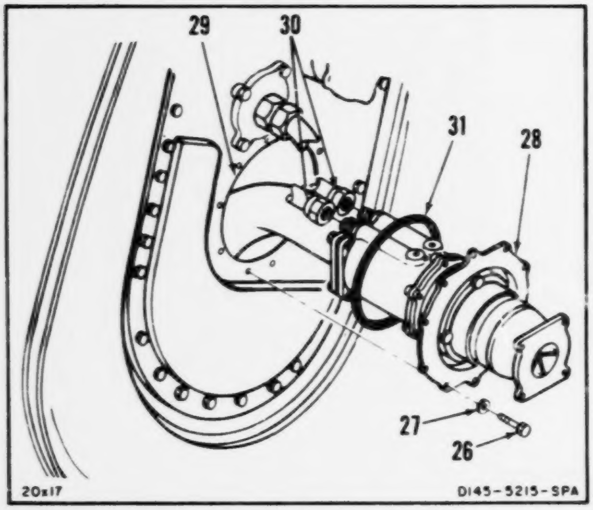
GO TO NEXT PAGE

10-57 REMOVE MAIN TANK (NO. 2 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-57

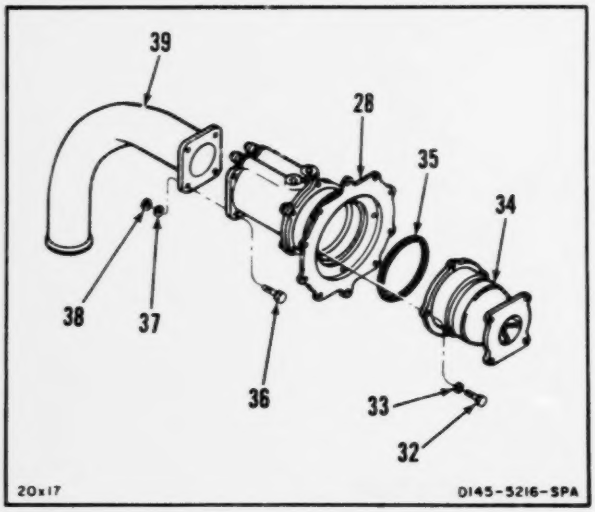
11. Remove six packings (25) from elbows (3 and 5), tube (9) and manifold (12).


12
3
25
9
25
5
20x17
D145-5214-SPA

12. Remove ten bolts (26) and washers (27).
13. Withdraw fuel valve (28) from tank (29) for access to two hose connections (30). **Disconnect hose connections.**
14. **Maneuver fuel valve (28)** from tank (29). Seal hole in tank. Use barrier material (E80) and tape (E388).
15. Remove gasket (31) from mounting flange of fuel valve (28).

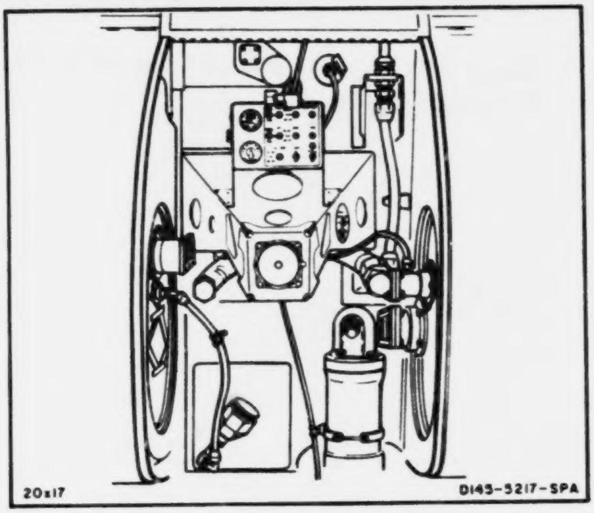

29
30
31
28
27
26
20x17
D145-5215-SPA

16. Remove four bolts (32) and washers (33). **Remove fitting (34)** and gasket (35) from valve (28).
17. Remove four bolts (36), washers (37), and nuts (38). **Remove tube (39).**
18. Clean up spilled fuel. Use cloths (E135).


39
28
35
34
38
37
36
33
32
20x17
D145-5216-SPA

GO TO NEXT PAGE

10-57 REMOVE MAIN TANK (NO. 2 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-57


20x17
D143-5217-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-58 INSTALL MAIN TANK (NO. 2 SYSTEM)FUEL LEVEL SHUTOFF VALVE 10-58

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Wrench, Open End, 1 1/2-Inch

Materials:
Gloves (E186)
Dry Cleaning Solvent (E162)
Cloths (E135)

Parts:
Packings
Gaskets

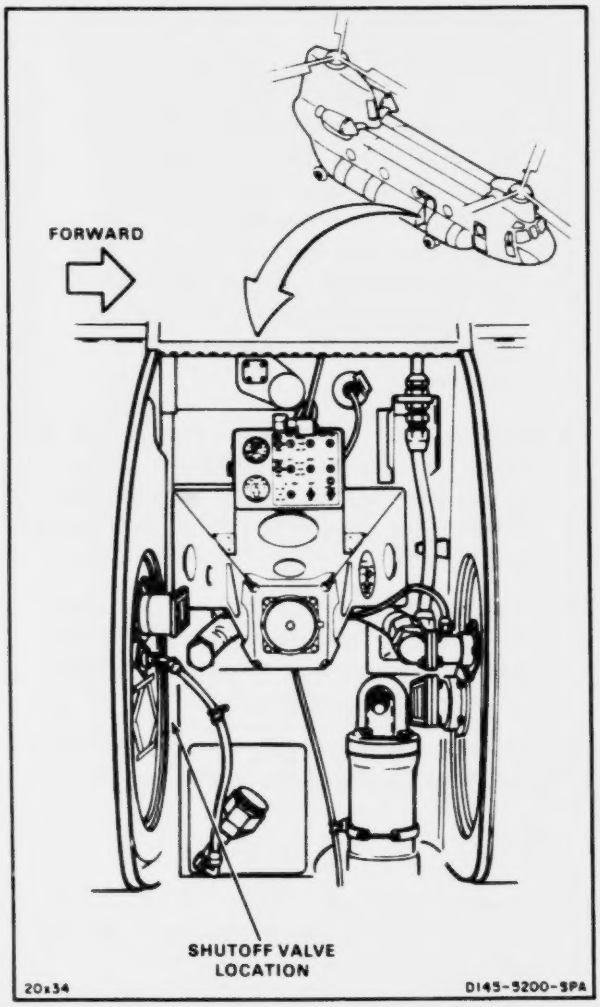
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

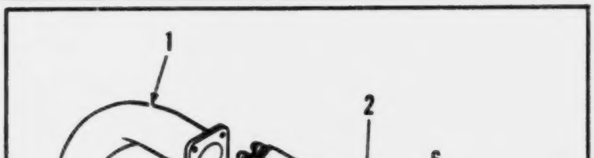
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
SHUTOFF VALVE LOCATION
20x34
D145-5200-SPA

1. **Position tube (1)** on valve (2). **Install four bolts (3),** washers (4), and nuts (5).
2. Install packing (6) on fitting (7) and **position fitting** on valve (2). **Install four bolts (8)** and washers (9).


1
2
6
7
5
4
3
9
8
20x17
D145-5201-SPA

GO TO NEXT PAGE

10-58 INSTALL MAIN TANK (NO. 2 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-58

3. Install packing (10) on mounting flange of valve (2).

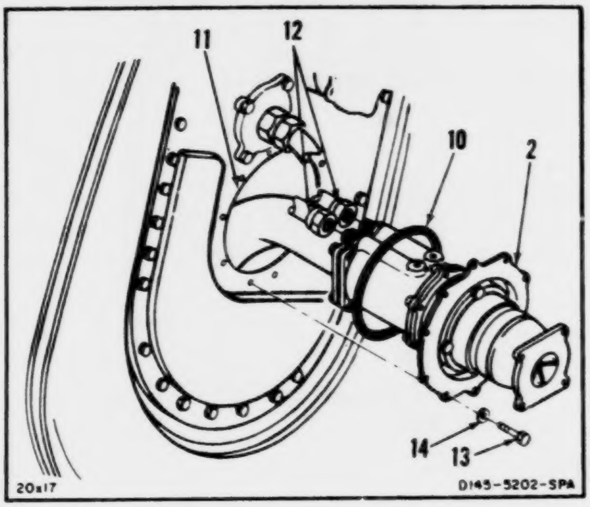
WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

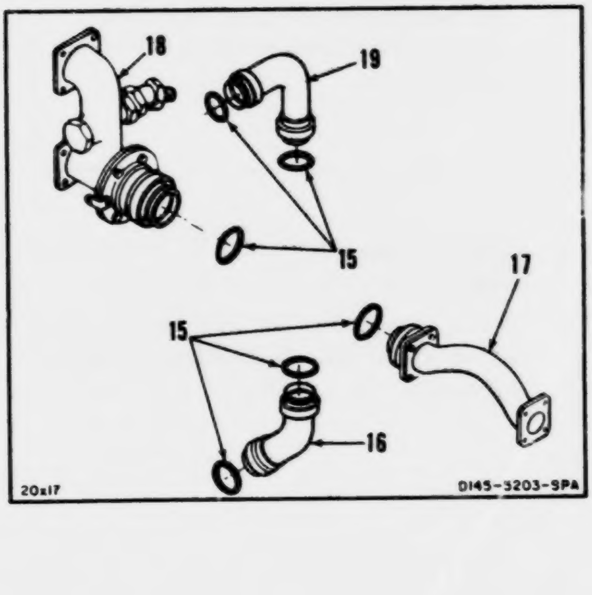
4. Remove barrier material and tape from hole in tank (11). Clean tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).

5. Pull ends of hoses (12) through hole to outside of tank (11). Maneuver valve (2) into position next to hole in tank. Remove tags and **connect hoses** to valve.

6. **Position valve (2)** against face of tank (11). **Install ten bolts (13)** and washers (14).



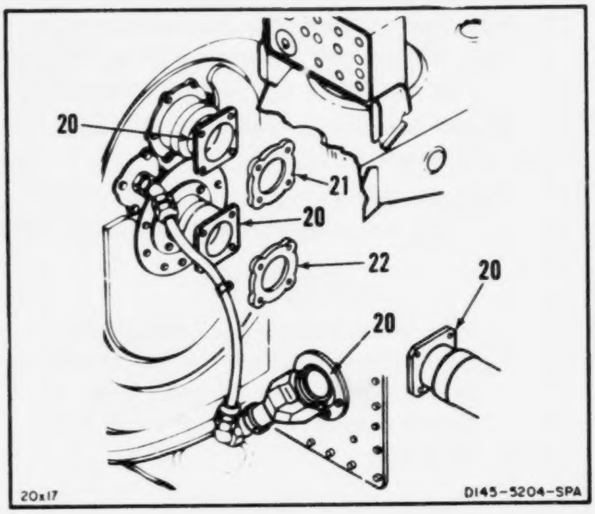
7. Install six packings (15), two on elbow (16), one on tube (17), one on manifold (18), and two on elbow (19).



GO TO NEXT PAGE

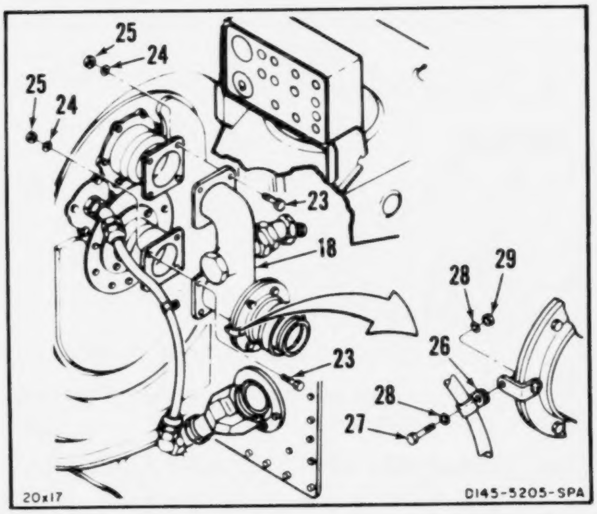
10-58 INSTALL MAIN TANK (NO. 2 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-58

8. Remove plugs from four fittings (20). Position two gaskets (21 and 22).

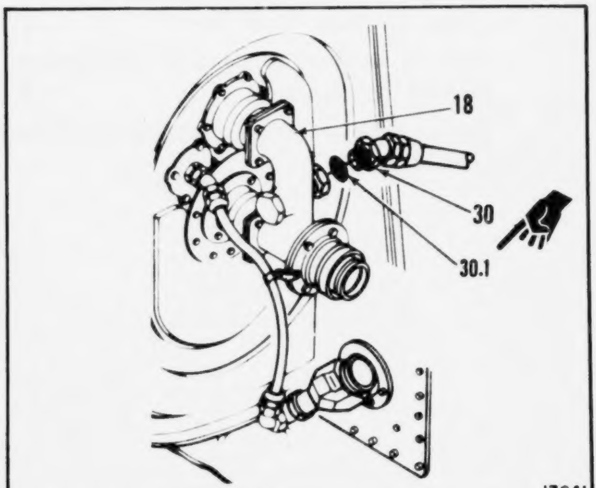

20
21
20
22
20
20
20x17
D145-5204-SPA

9. **Position manifold (18). Install eight bolts (23)**, washers (24), and nuts (25).

10. **Position hose clamp (26). Install bolt (27)**, two washers (28), and nut (29).


25
24
25
24
23
18
28
29
26
23
28
27
20x17
D145-5205-SPA

11. Remove plug from hose (30). Install conical seal (30.1) in hose fitting. **Connect hose** to manifold (18).


18
30
30.1
13641

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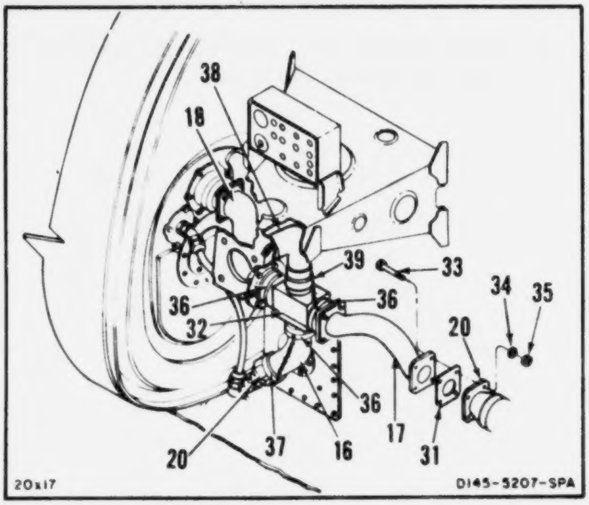
10-58 INSTALL MAIN TANK (NO. 2 SYSTEM) FUEL LEVEL SHUTOFF VALVE (Continued) 10-58



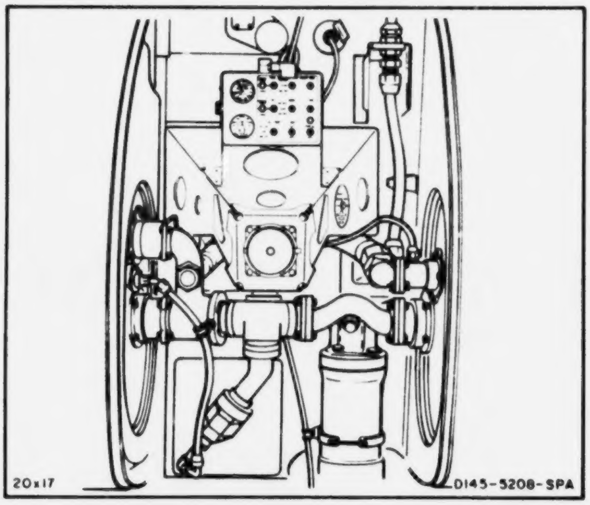
12. **Position gasket (31). Maneuver cross (32), elbow (16), and tube (17)** into position on manifold (18) and two fittings (20).
13. **Install four bolts (33)**, washers (34), and nuts (35).
14. **Tighten three ring nuts (36)** on cross (32) **and one ring nut (37)** on fitting (20).

CAUTION

Elbow must be positioned with flow direction arrow inboard and down. Structural damage can occur if elbow installation is not correct.

15. **Position elbow (38)** with flow direction arrow pointed inboard and down on cross (32).
16. Tighten ring nut (39).

INSPECT



FOLLOW-ON MAINTENANCE:

Install refueling adapter (Task 10-88).

Perform test of pressure refueling system (Task 10-119).

Refuel right side of helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Check for leaks (Task 10-4).

Perform operational check of fuel system (TM 55-1520-240-T).

Close and latch forward landing gear access panel (Task 2-2).

END OF TASK

10-59 REMOVE FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET FROM MAIN FUEL TANKS 10-59

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Barrier Material (E80)

Paper Tags (E264)

Tape (E388)

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

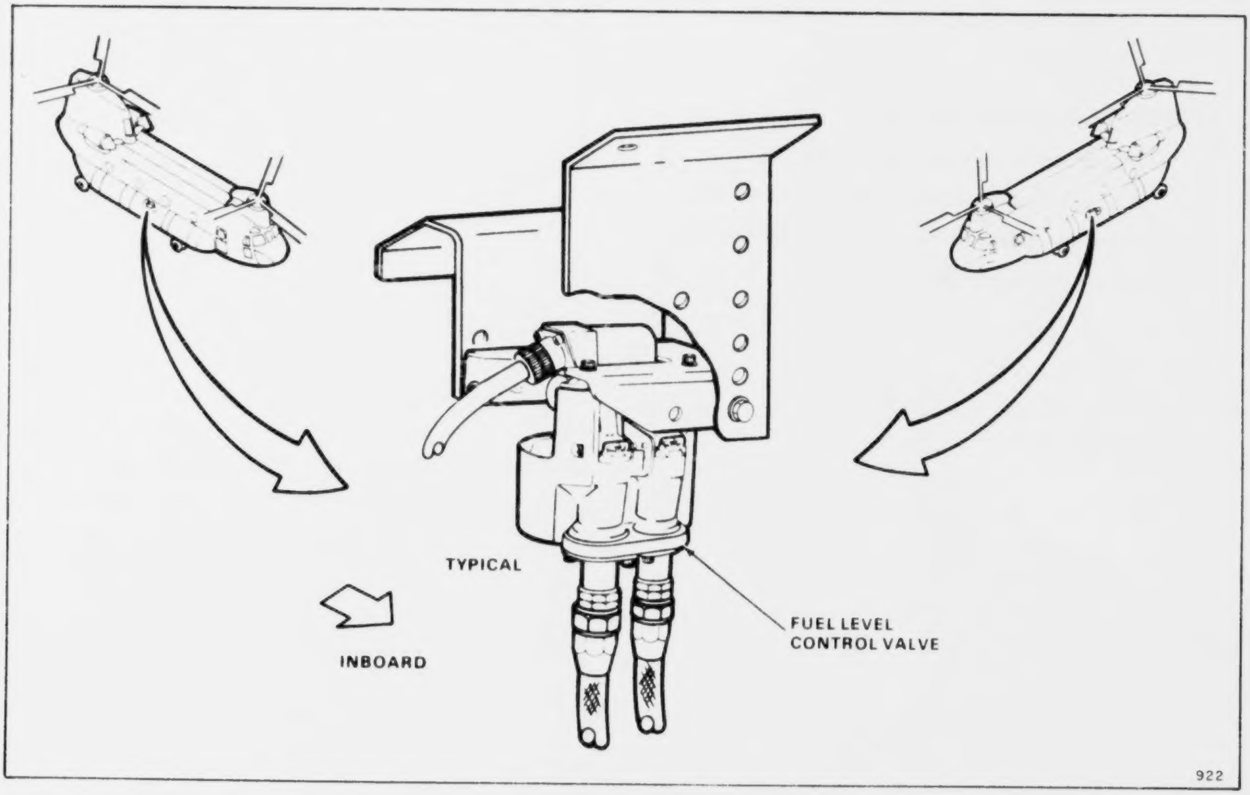
Helicopter Grounded (Task 1-29)

Aft Access Door Removed for Main Fuel Tank (Task 10-53)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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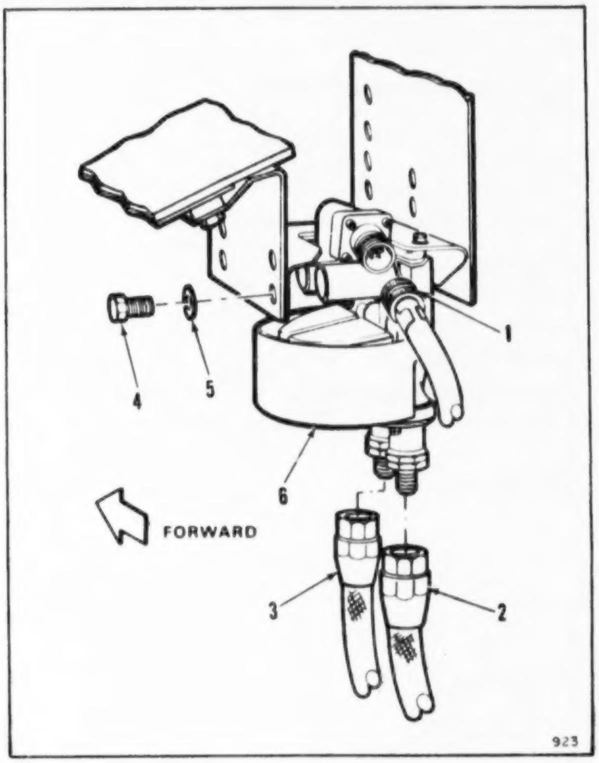
10-59 REMOVE FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET FROM MAIN FUEL TANKS (Continued) 10-59



NOTE

Procedure is same to remove fuel level control valve and mounting bracket from either main fuel tank. Removal of valve and mounting bracket for No. 1 (left) tank is shown here.

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

REMOVE CONTROL VALVE

1. **Disconnect electrical cable (1).**
2. Tag and **disconnect hoses (2 and 3).**
3. **Remove four bolts (4)** and washers (5).
4. **Remove valve (6).**

GO TO NEXT PAGE

10-59 REMOVE FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET FROM MAIN FUEL TANKS (Continued) 10-59

REMOVE MOUNTING BRACKET

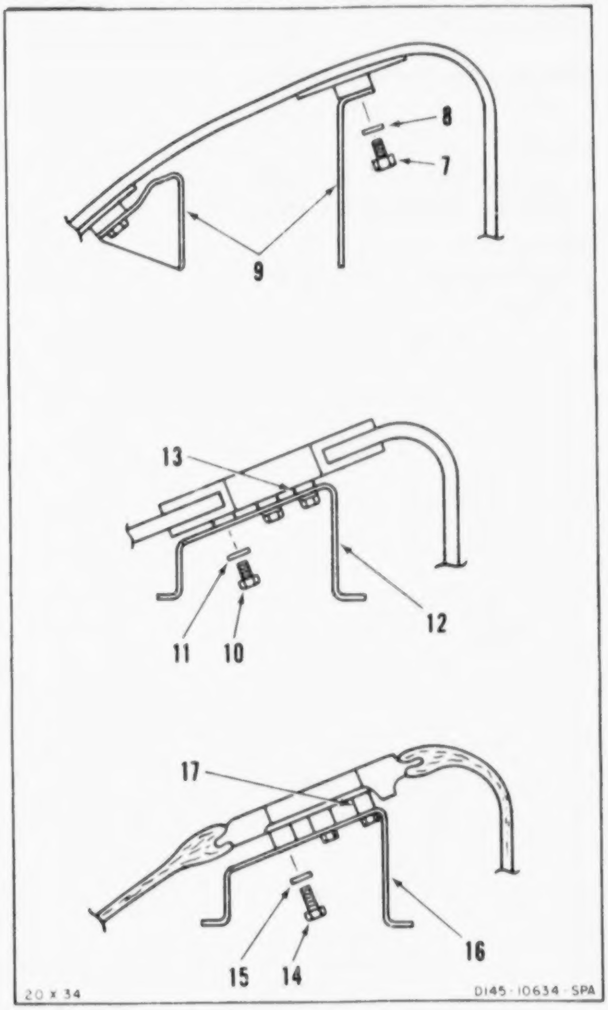
NOTE

Three different types of mounting bracket installation are used on the helicopter. Each requires a different attachment to the inside of the fuel cell.

5. **For fuel cells 414PS400-8, remove three bolts (7) and washers (8). Remove brackets (9).**

   For fuel cell 145P4057-1, remove three bolts (10) and three washers (11). Remove bracket (12) and three washers (13).

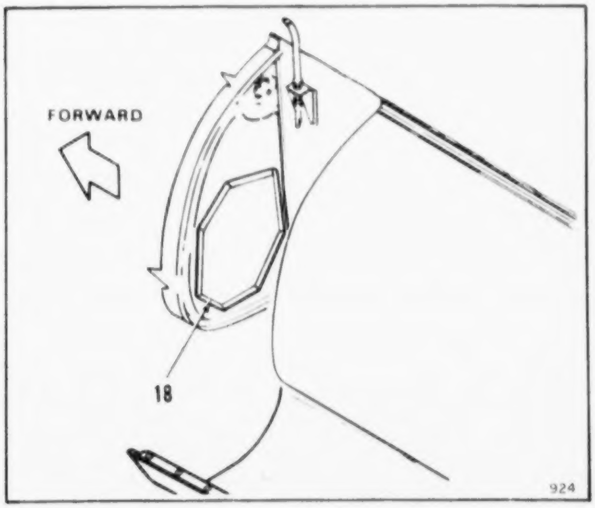
   For fuel cell 145P4057-2, remove three bolts (14) and washers (15). Remove bracket (16) and three bushings (17).



6. Cover access hole (18) in tank. Use barrier material (E80) and tape (E388).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

10-60 INSTALL FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET IN MAIN FUEL TANKS 10-60

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:

Dry Cleaning Solvent (E162)
Cloths (E135)
Gloves (E186)

Personnel Required:

Medium Helicopter Repairer
Inspector

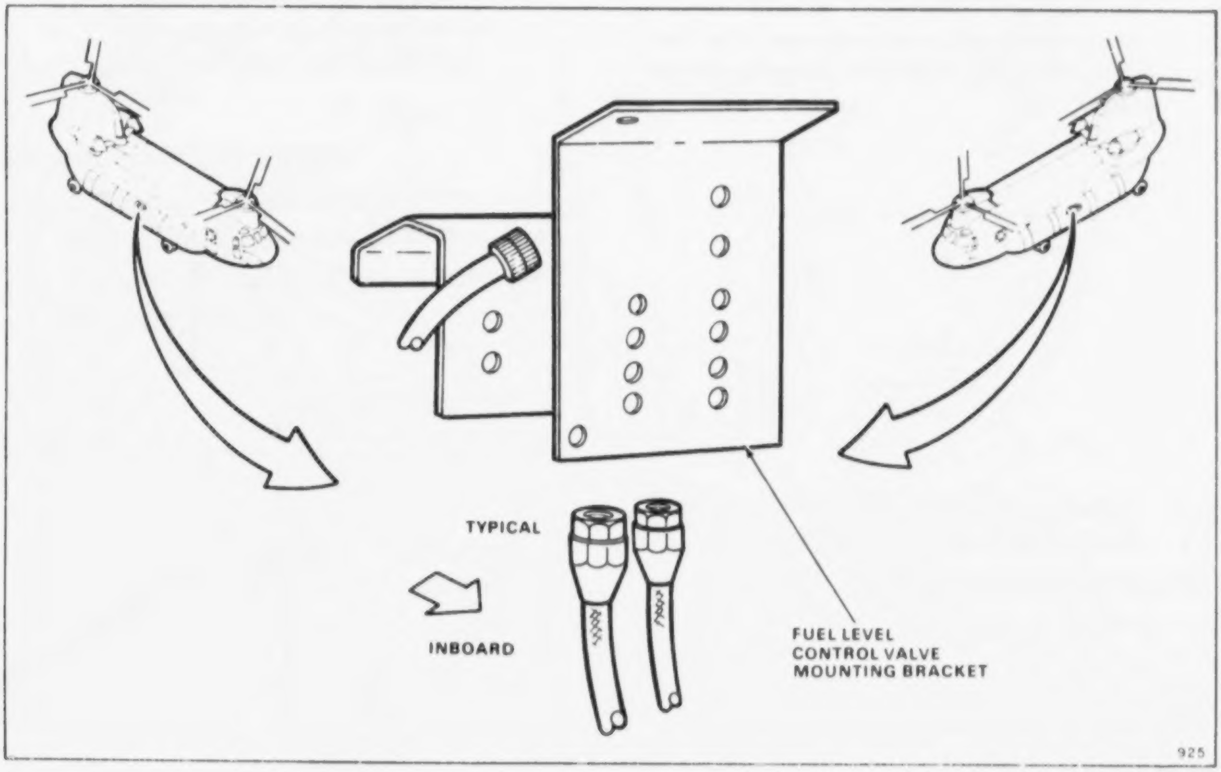
References:

TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


TYPICAL
INBOARD
FUEL LEVEL CONTROL VALVE MOUNTING BRACKET
925

10-60 INSTALL FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET IN MAIN FUEL TANKS (Continued) 10-60

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

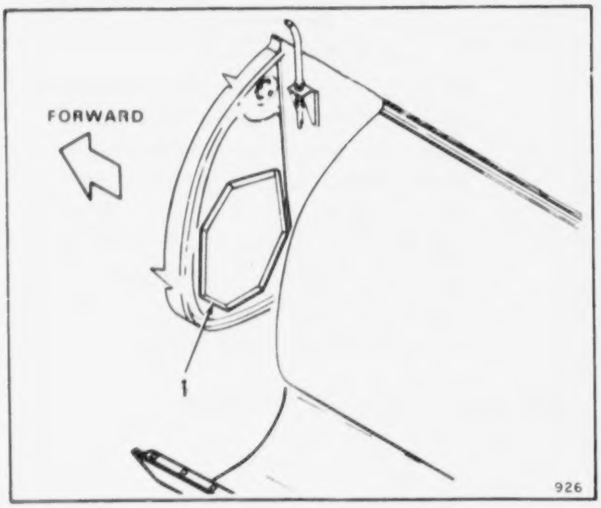
CAUTION

Do not use main tank fuel level control valves in auxiliary tanks or auxiliary tank valves in main tanks. Fuel system will not operate properly unless correct valves are used in correct tanks.

NOTE

Procedure is same to install fuel level control valve and mounting bracket in either main fuel tank. Installation of valve and bracket for No. 1 (left) tank is shown here.

1. Remove barrier material and tape from access hole (1) in tank. Remove tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).



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10-60 INSTALL FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET IN MAIN FUEL TANKS (Continued) 10-60

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush system.

INSTALL MOUNTING BRACKET

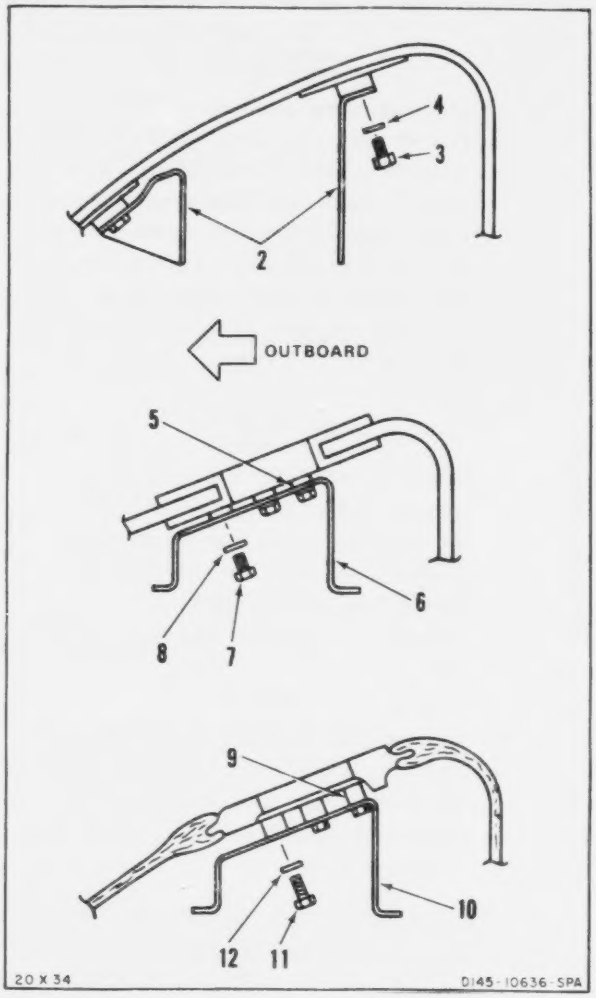
NOTE

Three different types of mounting bracket installation are used on the helicopter. Each requires a different attachment to the inside of the fuel cell.

2. **For fuel cell 414PS400-8, position two brackets (2). Install three bolts (3) and washers (4). Do not tighten bolts at this time.**

   For fuel cell 145P4057-1, position three thick washers (5) and bracket (6). Install three bolts (7) and thin washers (8).

   For fuel cell 145P4057-2, position three bushings (9) and bracket (10). Install three bolts (11) and washers (12).

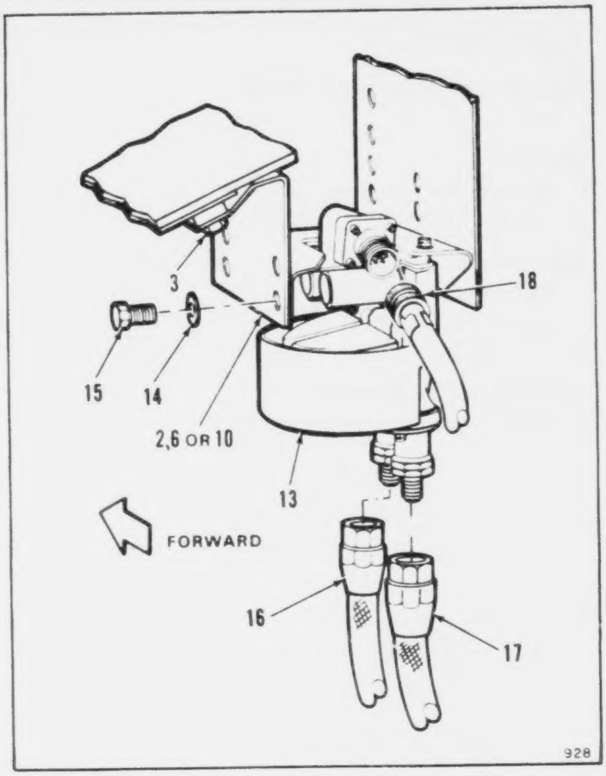


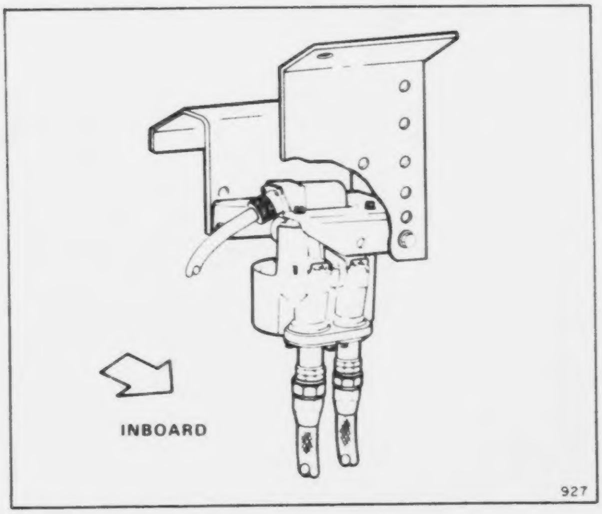
10-60 INSTALL FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET IN MAIN FUEL TANKS (Continued) 10-60

INSTALL CONTROL VALVE

3. **Position valve (13)** on bracket (2, 6 or 10).
4. **Install four** washers (14) and **bolts (15)** in bottom set of bracket mounting holes.
5. On fuel cell 414PS400-8, **tighten three bolts (3).**
6. **Connect two hoses (16 and 17)** to valve (13). Remove tags.
7. **Connect electrical cable (18).**

INSPECT





FOLLOW-ON MAINTENANCE:

Perform vent system pressure test (Task 10-117).

Install aft access door (Task 10-54).

Test main fuel tank (Task 10-22).

Perform vent system flow test on affected tank (Task 10-118).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of appropriate fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-4).

END OF TASK

10-60.1 REMOVE FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET FROM AUXILIARY FUEL TANKS 10-60.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Barrier Material (E80)

Paper Tags (E264)

Tape (E388)

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Helicopter Grounded (Task 1-29)

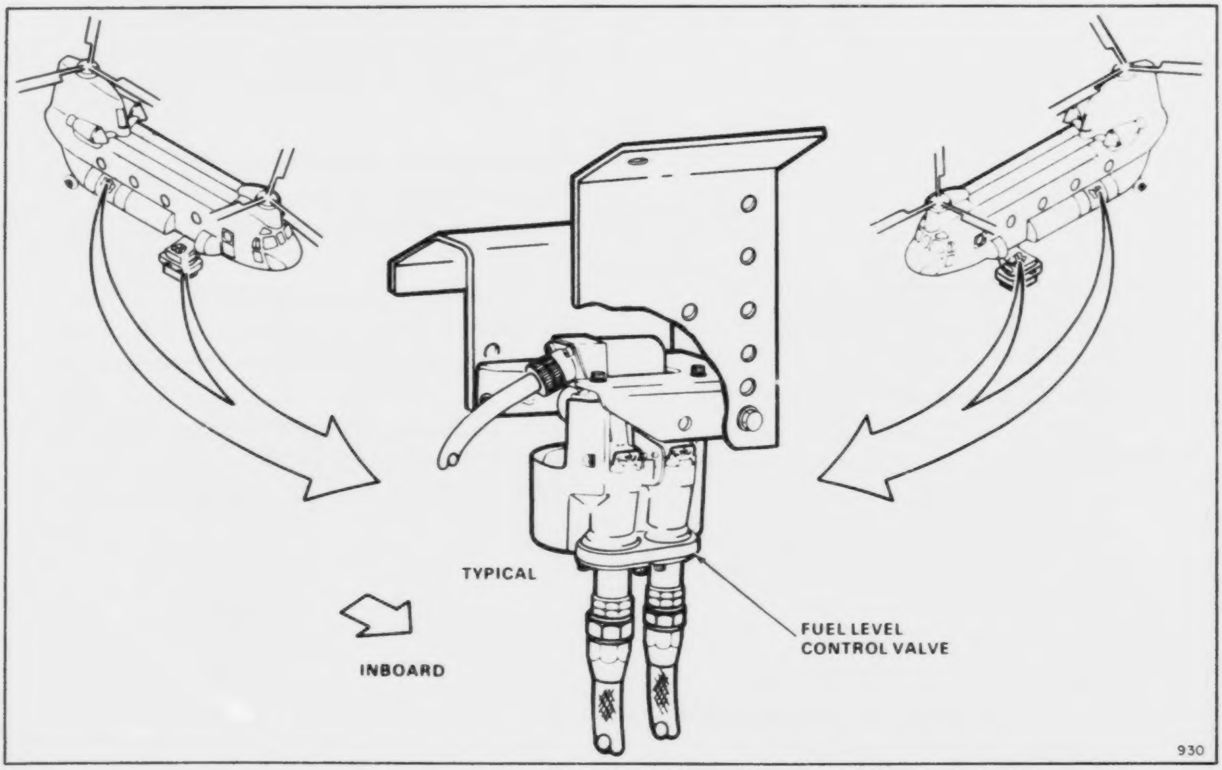
Forward Access Door Removed for Forward Fuel Tank (Task 10-69)

Forward Access Door Removed for Aft Fuel Tank (Task 10-79)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels, shall be strictly observed.



GO TO NEXT PAGE

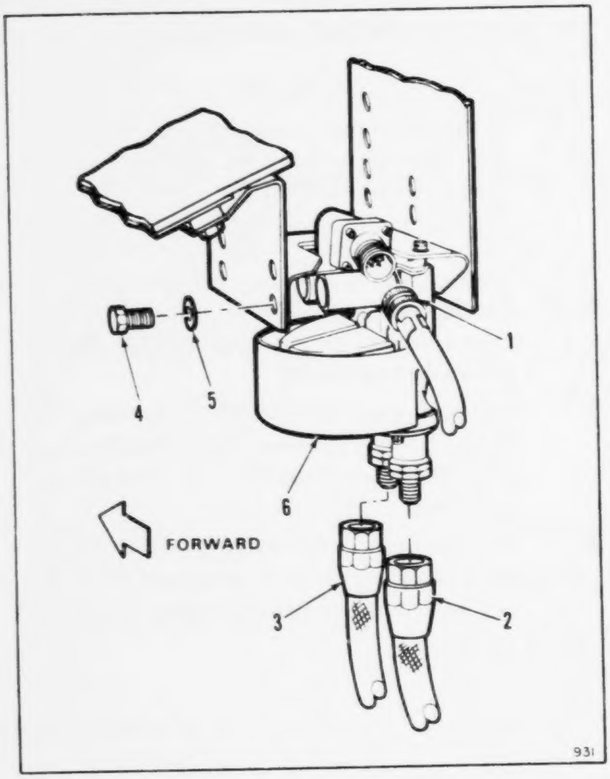
10-60.1 REMOVE FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET FROM AUXILIARY FUEL TANKS (Continued)

NOTE

Procedure is same to remove fuel level control valve and mounting bracket from any auxiliary fuel tank. Removal of valve and mounting bracket for No. 1 (left) aft tank is shown here.

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.



REMOVE CONTROL VALVE

1. **Disconnect electrical cable (1).**
2. Tag and **disconnect hoses (2 and 3).**
3. **Remove four bolts (4)** and washers (5).
4. **Remove valve (6).**

GO TO NEXT PAGE

10-60.1 REMOVE FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET FROM AUXILIARY FUEL TANKS (Continued) 10-60.1

REMOVE MOUNTING BRACKET

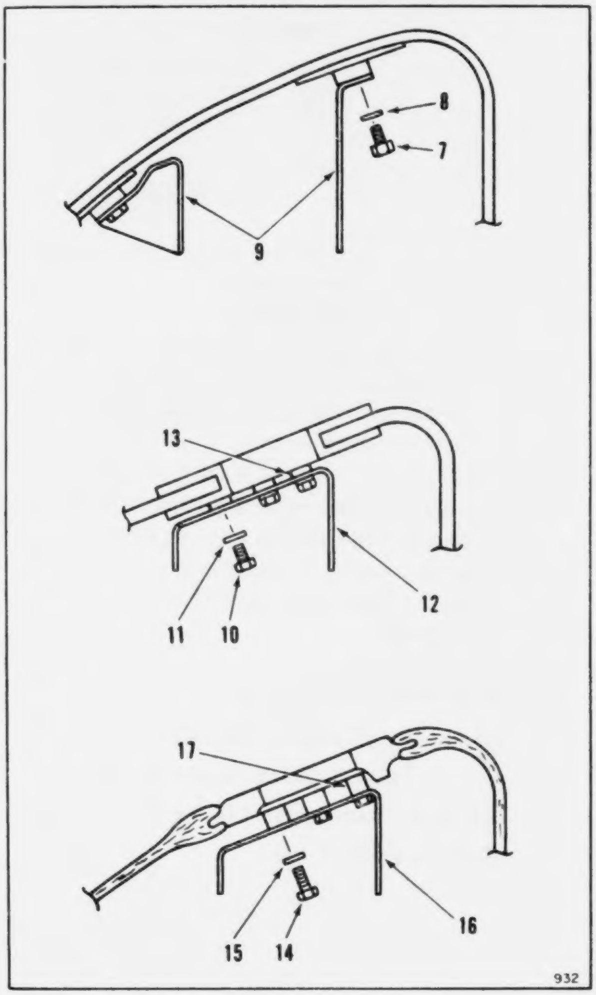
NOTE

Three different types of mounting bracket installation are used on the helicopter. Each requires a different attachment to the inside of the fuel cell.

5. **For fuel cells 414PS401-8, remove three bolts (7) and washers (8). Remove brackets (9).**

   For fuel cell 145P4056-1, remove three bolts (10) and three washers (11). Remove bracket (12) and three washers (13).

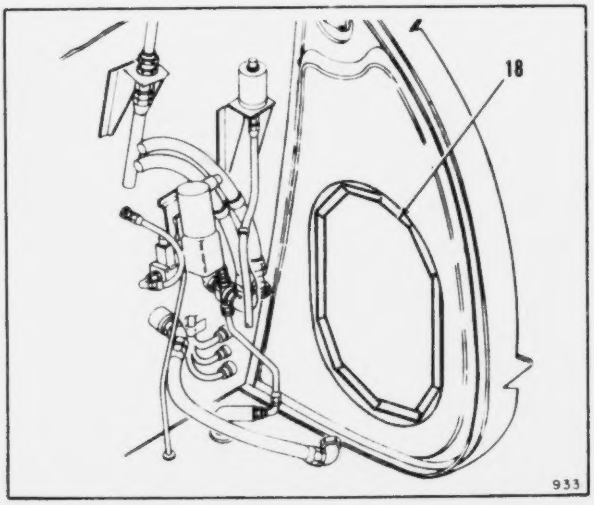
   For fuel cell 145P4056-2, remove three bolts (14) and washers (15). Remove bracket (16) and three bushings (17).



6. Cover access hole (18) in tank. Use barrier material (E80) and tape (E388).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

10-60.2 INSTALL FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET IN AUXILIARY FUEL TANKS 10-60.2

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Dry Cleaning Solvent (E162)
Cloths (E135)
Gloves (E186)

Personnel Required:

Medium Helicopter Repairer
Inspector

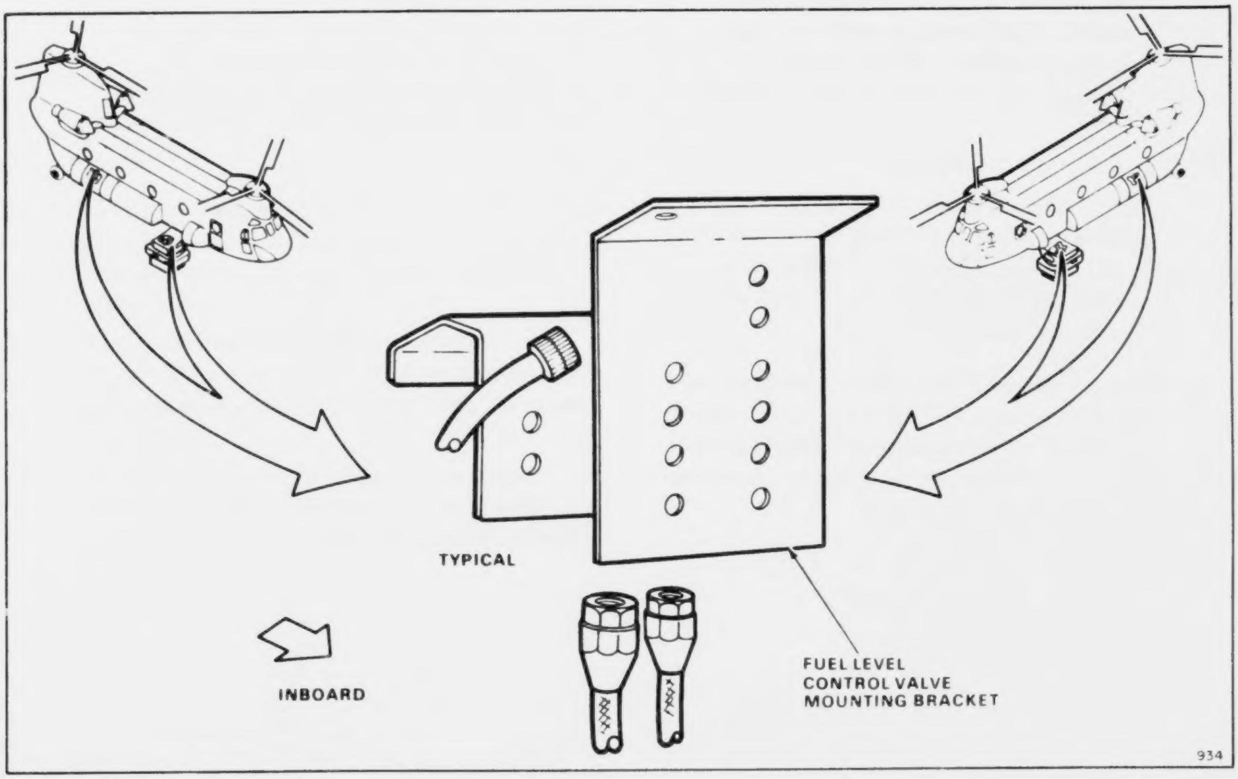
References:

TM 55-1520-240-23P

General Safety Instructions:

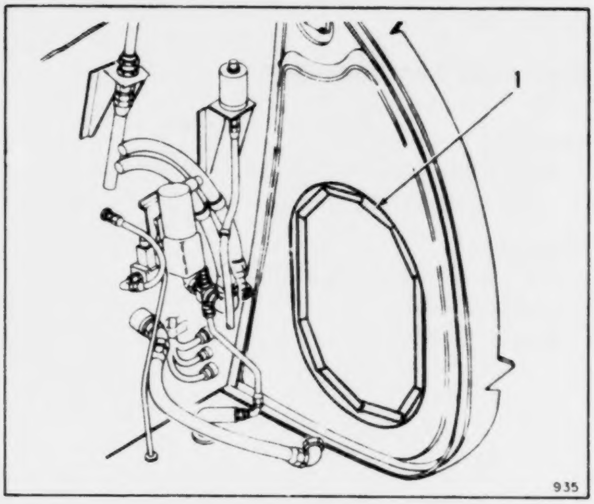
WARNING

All regulations and instructions for handling fuels shall be strictly observed.


TYPICAL
INBOARD
FUEL LEVEL CONTROL VALVE MOUNTING BRACKET
934

GO TO NEXT PAGE

10-60.2 INSTALL FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET IN AUXILIARY FUEL TANKS (Continued) 10-60.2



WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CAUTION

Do not use main tank fuel level control valves in auxiliary tanks or auxiliary tank valves in main tanks. Fuel system will not operate properly unless correct valves are used in correct tanks.

NOTE

Procedure is same to install fuel level control valve and mounting bracket in any auxiliary fuel tank. Installation of valve and bracket for No. 1 (left) aft tank is shown here.

1. Remove barrier material and tape from access hole in tank (1). Remove tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).

GO TO NEXT PAGE

10-60.2 INSTALL FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET IN AUXILIARY FUEL TANKS (Continued) 10-60.2

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

INSTALL MOUNTING BRACKET

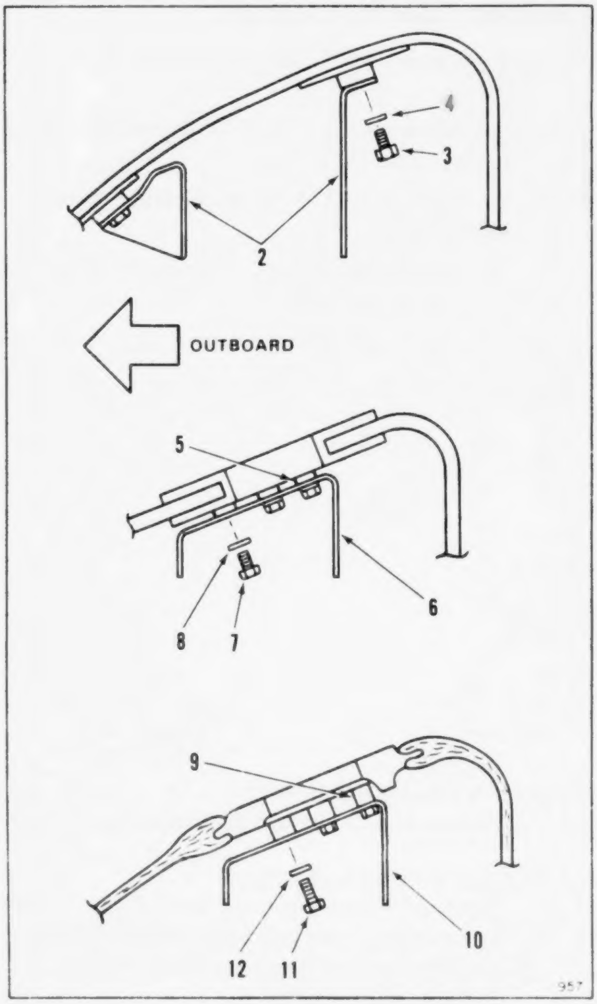
NOTE

Three different types of mounting bracket installation are used on the helicopter. Each requires a different attachment to the inside of the fuel cell.

2. **For fuel cell 414PS401-8, position two brackets (2). Install three bolts (3) and washers (4). Do not tighten bolts at this time.**

For fuel cell 145P4056-1, position three thick washers (5) and bracket (6). Install three bolts (7) and thin washers (8).

For fuel cell 145P4056-2, position three bushings (9) and bracket (10). Install three bolts (11) and washers (12).



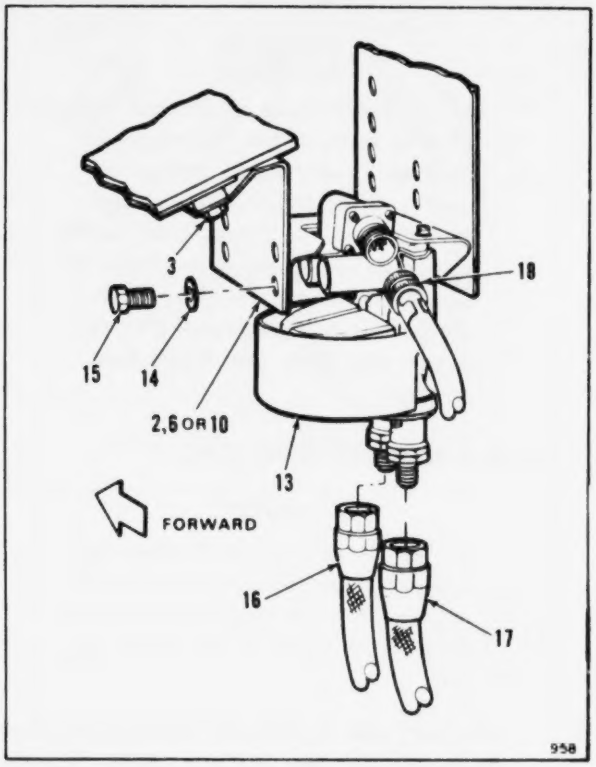
GO TO NEXT PAGE

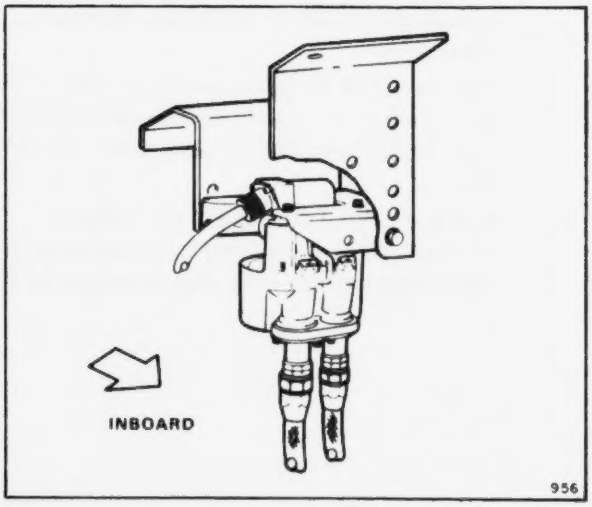
10-60.2 INSTALL FUEL LEVEL CONTROL VALVE AND MOUNTING BRACKET IN AUXILIARY FUEL TANKS (Continued) 10-60.2

INSTALL CONTROL VALVE

3. **Position valve (13)** on bracket (2, 6 or 10).
4. **Install four** washers (14) and **bolts (15)** in lowest hole locations.
5. On fuel cell 414PS401-8, **tighten three bolts (3).**
6. **Connect two hoses (16 and 17)** to valve (13). Remove tags.
7. **Connect electrical cable (18).**

INSPECT





FOLLOW-ON MAINTENANCE:
- Perform vent system pressure test (Task 10-117).
- For forward fuel tank:
  - Install forward access door (Task 10-26).
  - Install forward fuel tank (Task 10-70).
  - Test forward fuel tank (Task 10-27).
- For aft fuel tank:
  - Install forward access door (Task 10-80).
  - Install fuel level shutoff valve (Task 10-82).
  - Test aft fuel tank (Task 10-32).
- Perform vent system flow test on affected tank (Task 10-118).
- Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).
- Refuel helicopter (Task 1-51).
- Bleed fuel system (Task 10-121).
- Perform operational check of appropriate fuel system (TM 55-1520-240-T).
- Inspect for leaks (Task 10-4).

END OF TASK

10-61 REMOVE SUCTION FEED CHECK VALVE 10-61

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Barrier Material (E80)
Tape (E388)

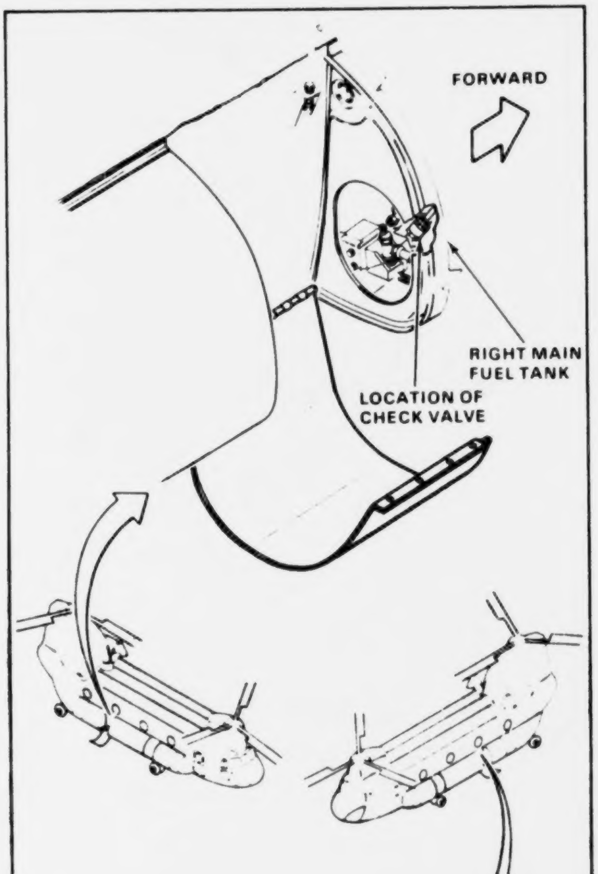
Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Main Fuel Tank Defueled (Task 10-34 or 10-35)
Aft Intertank Pod Lowered (Task 2-185)
Main Fuel Tank Aft Access Door Removed (Task 10-53)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
RIGHT MAIN FUEL TANK
LOCATION OF CHECK VALVE
LEFT MAIN FUEL TANK
FORWARD
LOCATION OF CHECK VALVE
20x51
D145-6323-SPA

GO TO NEXT PAGE

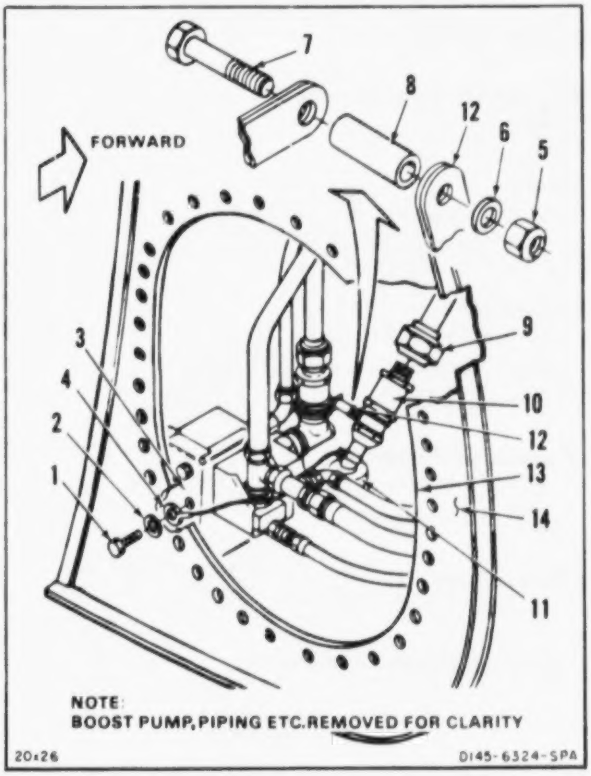
10-61 REMOVE SUCTION FEED CHECK VALVE (Continued) 10-61

CAUTION

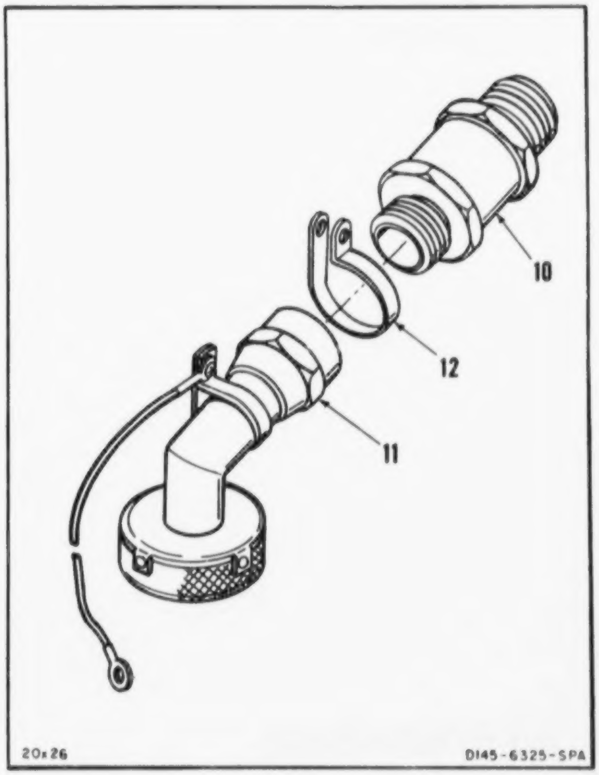
Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

NOTE

Procedure is same to remove suction feed check valve from No. 1 or No. 2 main fuel tank. Removal of No. 2 (right) valve is shown here.


7
8
12
6
5
FORWARD
9
3
4
2
1
10
12
13
14
11
NOTE:
BOOST PUMP, PIPING ETC. REMOVED FOR CLARITY
20x26
D145-6324-SPA

1. Remove bolt (1) and washer (2) from mounting bracket (3).
2. **Disconnect bonding jumper (4).** Install washer (2) and bolt (1).
3. **Remove** nut (5), washer (6), **bolt (7), and spacer (8).**
4. **Disconnect tube (9)** from check valve (10).
5. **Remove check valve (10),** bellmouth tube (11), clamp (12), and bonding jumper (4) as a unit.
6. Cover access hole (13) in tank (14). Use barrier material (E80) and tape (E388).


10
12
11
20x26
D145-6325-SPA

7. **Disconnect bellmouth tube (11)** from valve (10).
8. **Remove clamp (12).**

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-62 INSTALL SUCTION FEED CHECK VALVE 10-62

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Cloths (E120)
Dry Cleaning Solvent (E162)
Gloves (E186)

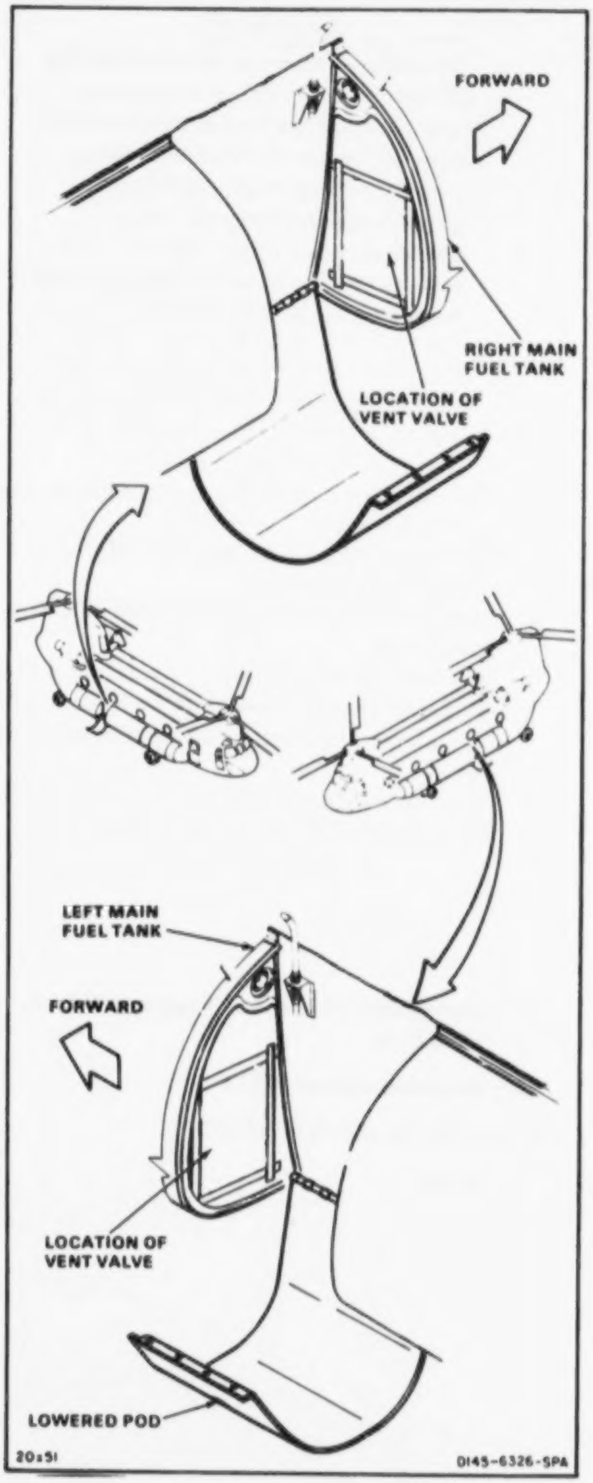
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
RIGHT MAIN FUEL TANK
LOCATION OF VENT VALVE
LEFT MAIN FUEL TANK
FORWARD
LOCATION OF VENT VALVE
LOWERED POD
20x51
D145-6326-SPA

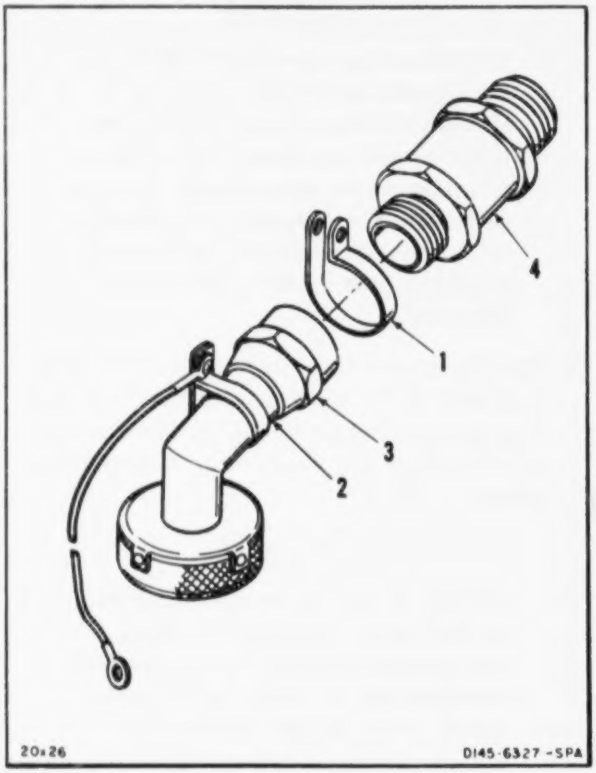
GO TO NEXT PAGE

10-62 INSTALL SUCTION FEED CHECK VALVE (Continued) 10-62

NOTE

Procedure is same to install suction feed check valve in No. 1 or No. 2 main fuel tank. Installation of No. 2 (right) valve is shown here.

1. **Install clamp (1)** on bellmouth tube (2).
2. **Connect bellmouth tube connector (3)** to check valve (4).



10-62 INSTALL SUCTION FEED CHECK VALVE (Continued) 10-62

WARNING

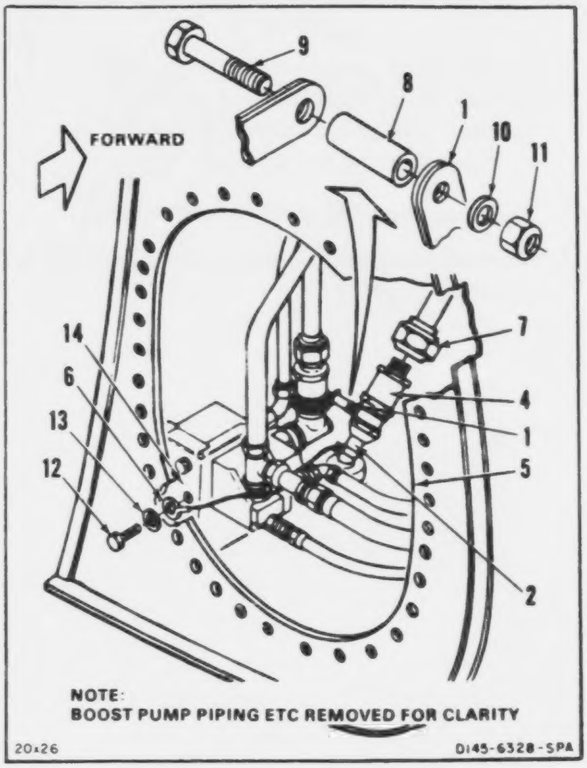
Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

3. Remove barrier material and tape from main fuel tank (5). Remove tape residue from tank. Use dry cleaning solvent (E162) and cloths (E120). Wear goggles to protect eyes. Wear gloves (E186).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

4. **Position check valve (4),** bellmouth tube (2), clamp (1), and bonding jumper (6) as a unit.
5. **Connect tube (7)** to check valve (4).
6. **Position spacer (8) and clamp (1). Install bolt (9),** washer (10), and nut (11).
7. **Remove bolt (12)** and washer (13) from mounting bracket (14).
8. **Position bonding jumper (6). Install washer (13) and bolt (12).**



NOTE:
BOOST PUMP PIPING ETC REMOVED FOR CLARITY

INSPECT

GO TO NEXT PAGE

10-62 INSTALL SUCTION FEED CHECK VALVE (Continued) 10-62

FOLLOW-ON MAINTENANCE:

Perform vent system pressure test (Task 10-117).

Install main fuel tank aft access door (Task 10-54).

Test main fuel tank (Task 10-22).

Perform vent system flow test (Task 10-118).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (TM 55-1520-240-T)

Inspect for leaks (Task 10-4).

Close and latch aft intertank pod panel (Task 2-188).

END OF TASK

10-63 REMOVE FUEL TANK VENT FAIRING 10-63

INITIAL SETUP

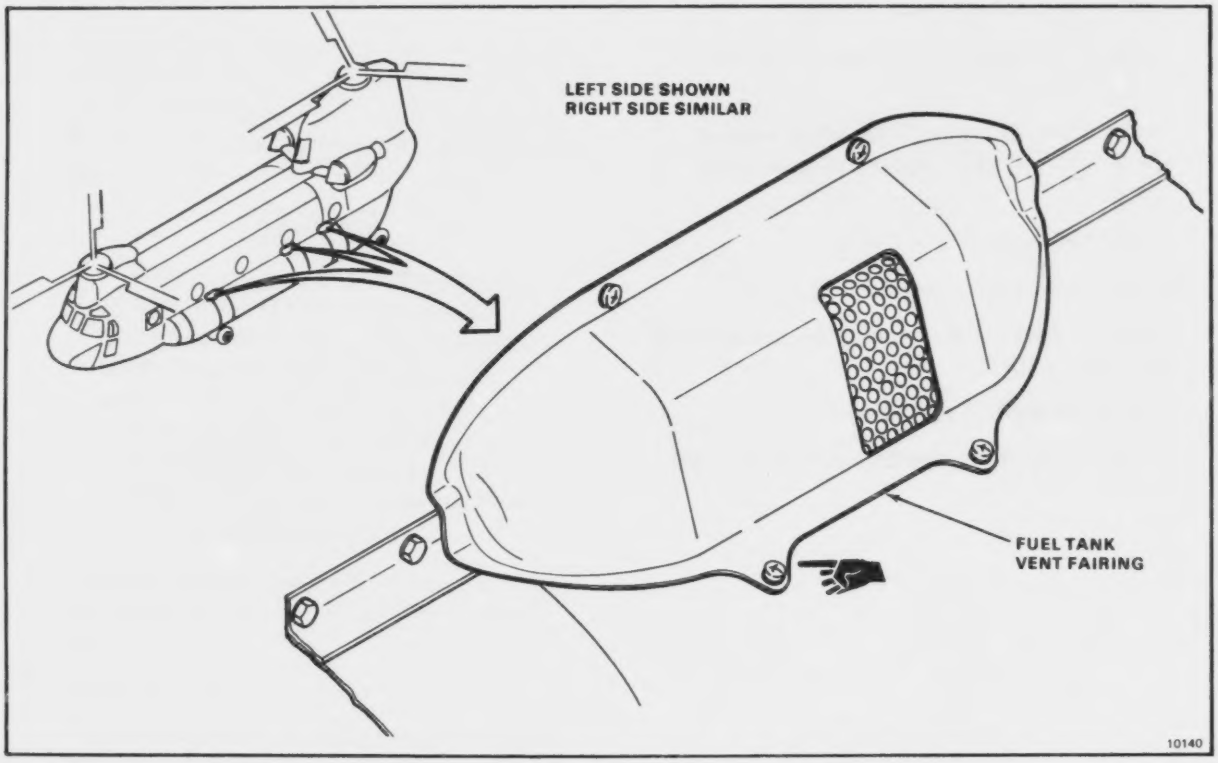
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

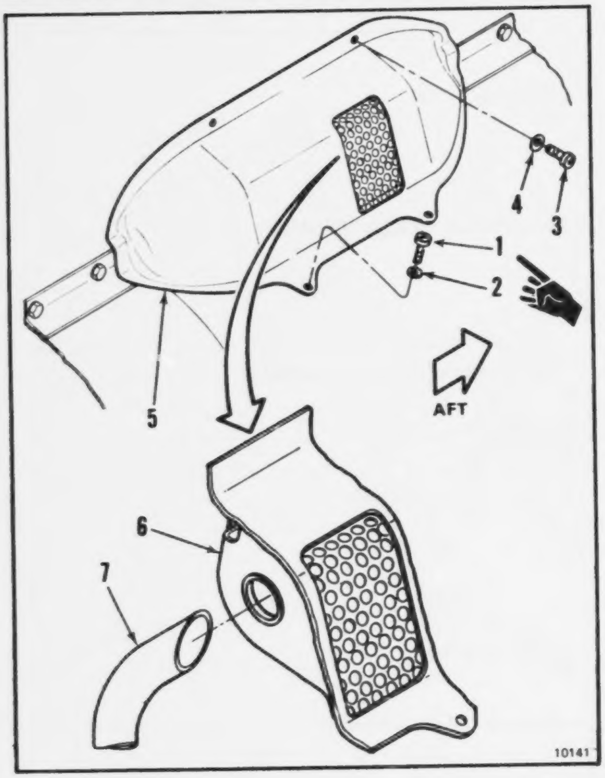
Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


LEFT SIDE SHOWN
RIGHT SIDE SIMILAR
FUEL TANK VENT FAIRING
10140

GO TO NEXT PAGE

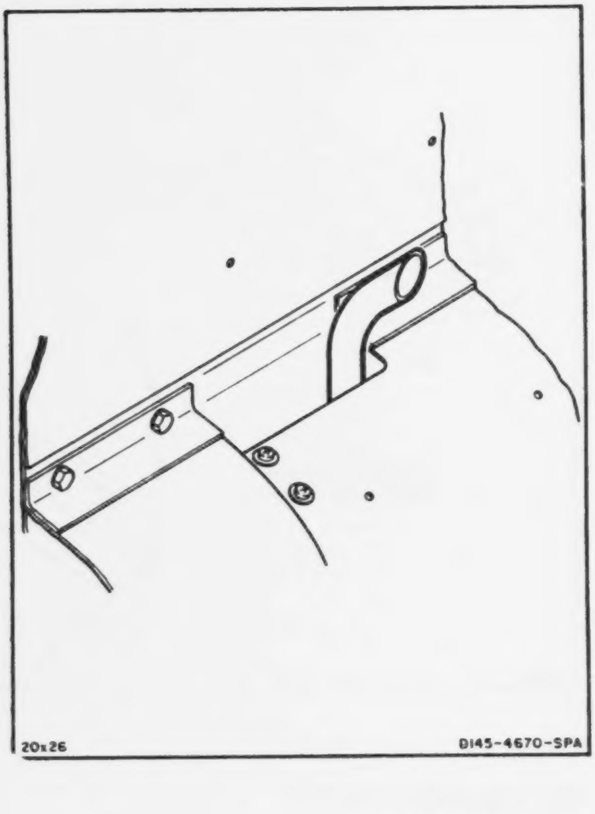
10-63 REMOVE FUEL TANK VENT FAIRING (Continued) 10-63



NOTE

Procedure is same to remove any of six fuel tank vent fairings. Removal of left side main tank vent fairing is shown here.

1. **Remove two screws (1)** and washers (2).
2. **Remove two screws (3)** and washers (4).
3. Slide vent fairing (5) aft to disengage baffle (6) from vent tube (7).
4. **Remove fairing (5).**



FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-64 INSTALL FUEL TANK VENT FAIRING 10-64

INITIAL SETUP

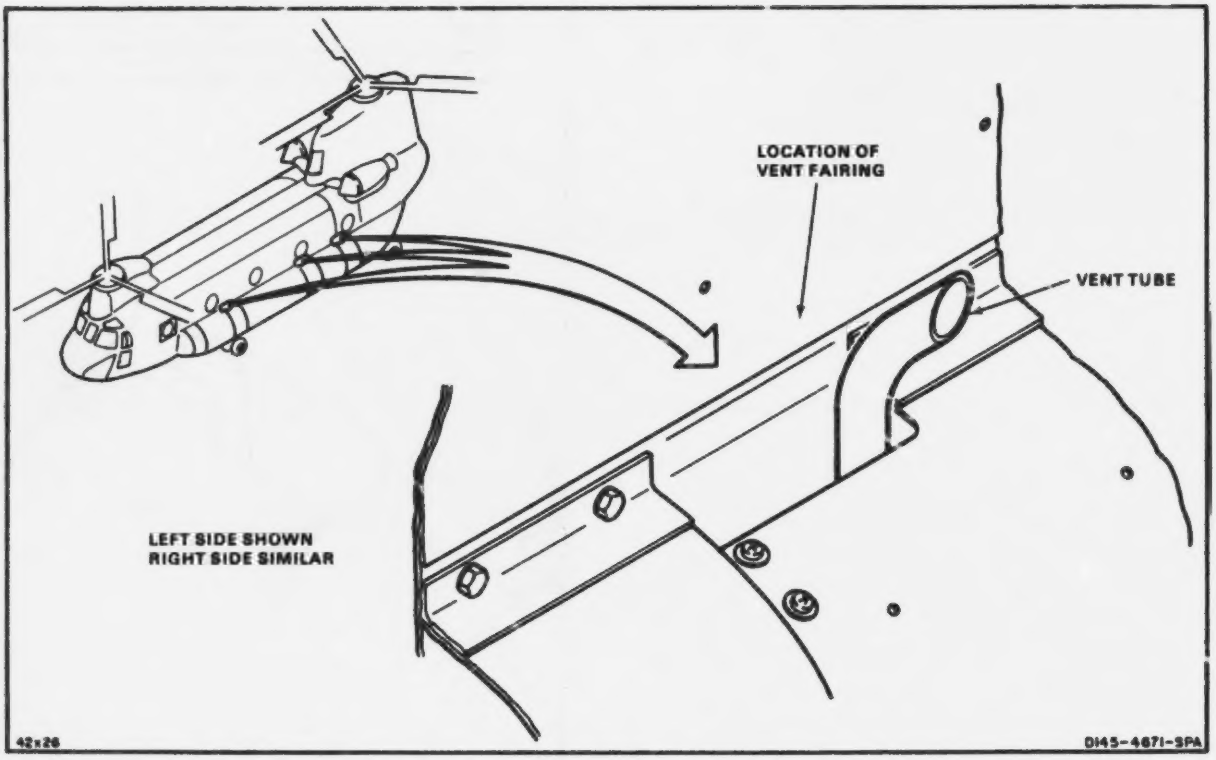
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P


LOCATION OF VENT FAIRING
VENT TUBE
LEFT SIDE SHOWN
RIGHT SIDE SIMILAR
42x26
DI45-4671-SPA

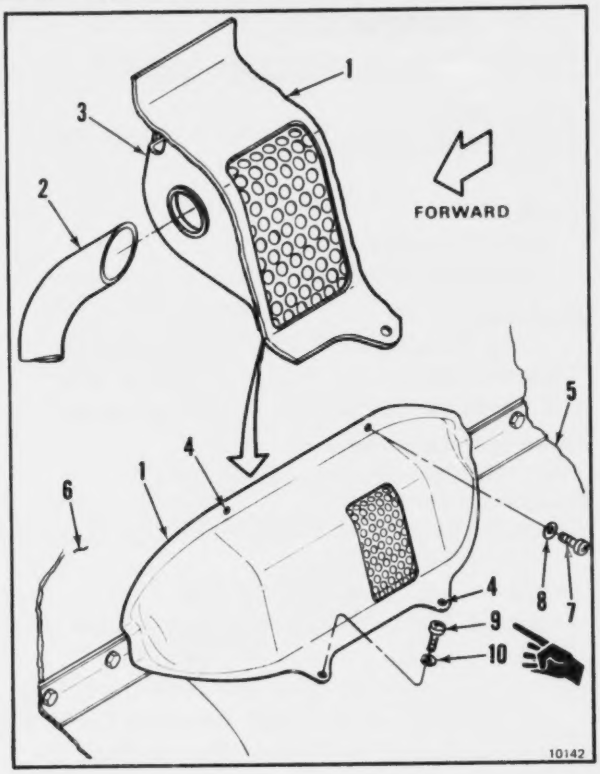
GO TO NEXT PAGE

10-64 INSTALL FUEL TANK VENT FAIRING (Continued) 10-64

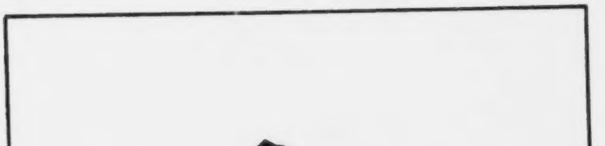
NOTE

Procedure is same to install any of six fuel tank vent fairings. Installation of left side main tank vent fairing is shown here.

1. **Position fairing (1)** aft of vent tube (2). Align hole in baffle (3) with end of tube. Slide fairing forward.
2. Align four holes (4) in fairing (1) with holes in pod (5) and fuselage (6).
3. **Install two screws (7)** and washers (8).
4. **Install two screws (9)** and washers (10).



INSPECT



FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-65 REMOVE FORWARD OR AFT FUEL TANK VENT ASSEMBLY 10-65

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Barrier Material (E80)
Tape (E388)
Paper Tags (E264)

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Affected Side of Helicopter Defueled (Task 10-34 or 10-35)
Fuel Quantity Transmitter Removed (Task 8-81)
For Forward Fuel Tank Vent Assembly Removal (Only), Lower Fuel Tank on Hinges (Task 10-23)
Forward Access Door Removed on Forward or Aft Auxiliary Tank (Task 10-69 or 10-79)

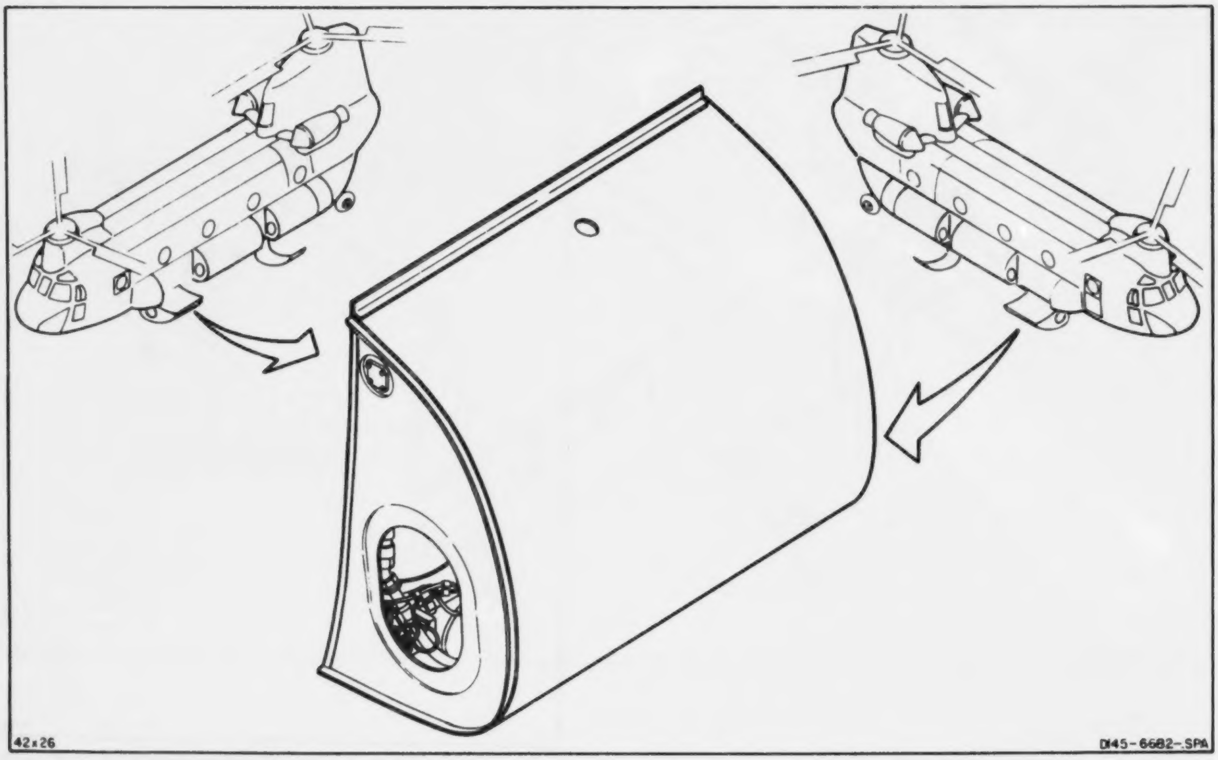
General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.

CAUTION

Do not puncture or scratch lining of fuel cell. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel cell and flush fuel system.



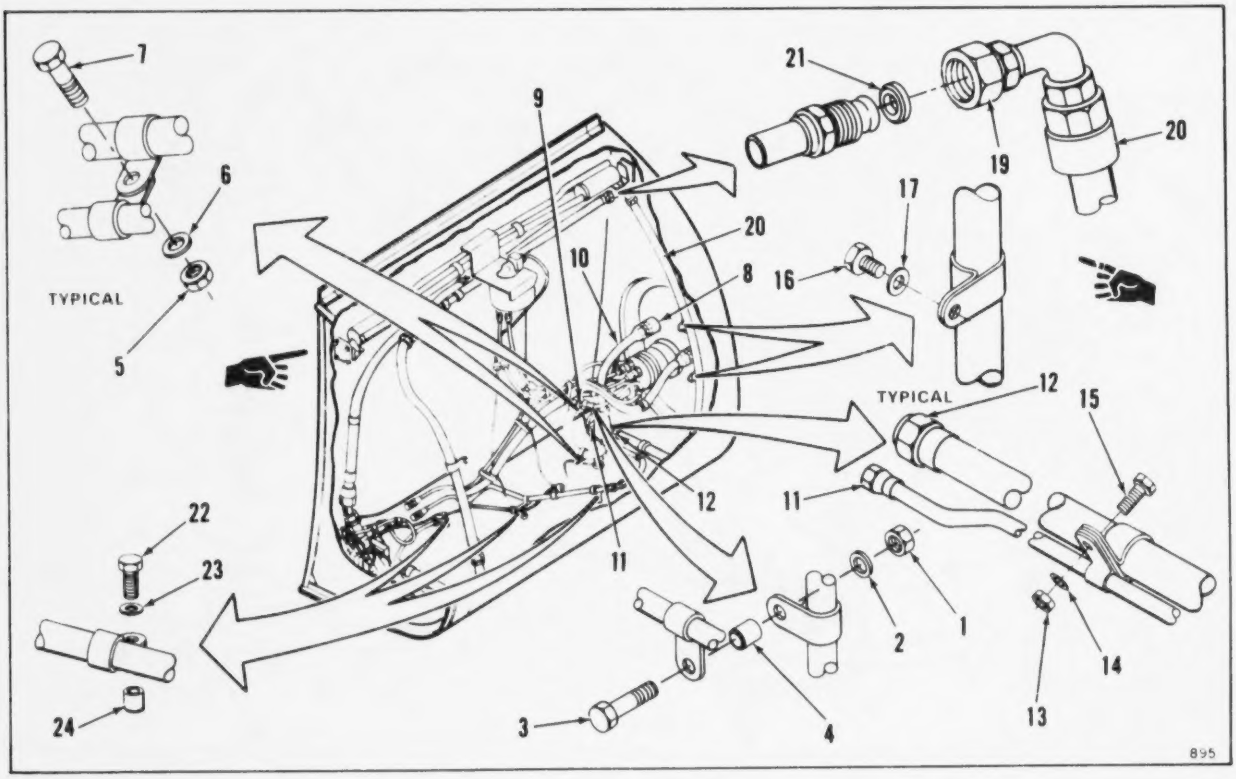
GO TO NEXT PAGE

10-65 REMOVE FORWARD OR AFT FUEL TANK VENT ASSEMBLY (Continued) 10-65

NOTE

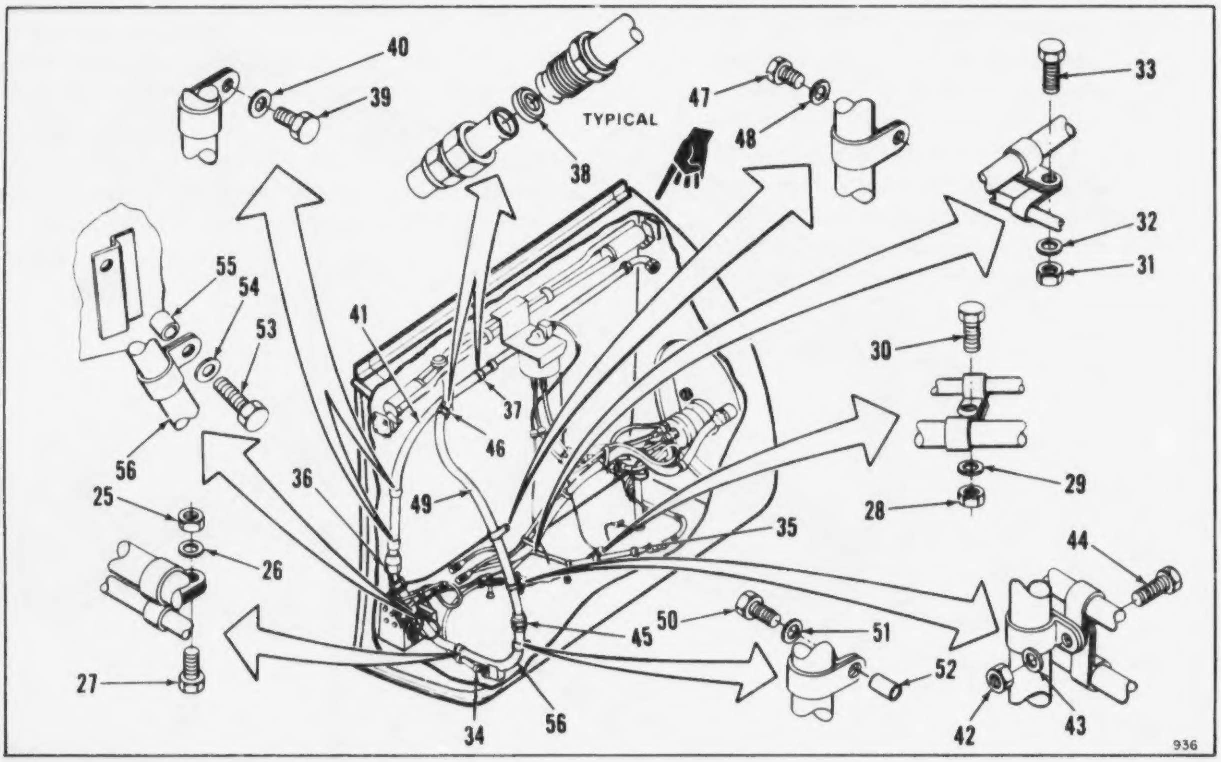
Procedure is same to remove No. 1 or No. 2 forward or aft auxiliary fuel tank vent assembly. No. 1 (left) forward auxiliary fuel tank vent assembly is shown here.

1. **On forward fuel tank only, remove** nut (1), washer (2), **screws (3)**, and spacer (4).
2. **On forward fuel tank only, remove two** nuts (5), washers (6), and **screws (7).**
3. **Disconnect hose connectors (8 and 9).** Tag and **remove hose (10).**
4. **Disconnect hose connectors (11 and 12).**
5. **Remove** nut (13), washer (14), and **screw (15).**
6. **Remove two screws (16)** and washers (17).
7. **Disconnect hose connector (19)**. Tag and remove hose (20) and ring (21).
8. **Remove three screws (22),** washers (23), and spacers (24). Tag each screw and spacer for correct location.



10-65 REMOVE FORWARD OR AFT FUEL TANK VENT ASSEMBLY (Continued) 10-65

9. **Remove** nut (25), washer (26), and **screw (27).**
10. **Remove** nut (28), washer (29), and **screw (30).**
11. **Remove** nut (31), washer (32), and **screw (33).**
12. **Disconnect hose connector (34).** Tag and **remove tube assembly (35).**
13. **Disconnect hose connectors (36) and (37).** Remove two rings (38).
14. **Remove two screws (39),** washers (40). Tag and **remove hose (41).**
15. On aft tank only, remove nut (42), washer (43), and screw (44).
16. **Disconnect hose connectors (45) and (46).** Remove ring (38).
17. **Remove screw (47)** and washer (48). Tag and **remove hose (49).**
18. **Remove screw (50),** washer (51), and spacer (52).
19. **Remove screw (53)**, washer (54), and spacer (55). Tag and **remove tube (56).**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TYPICAL
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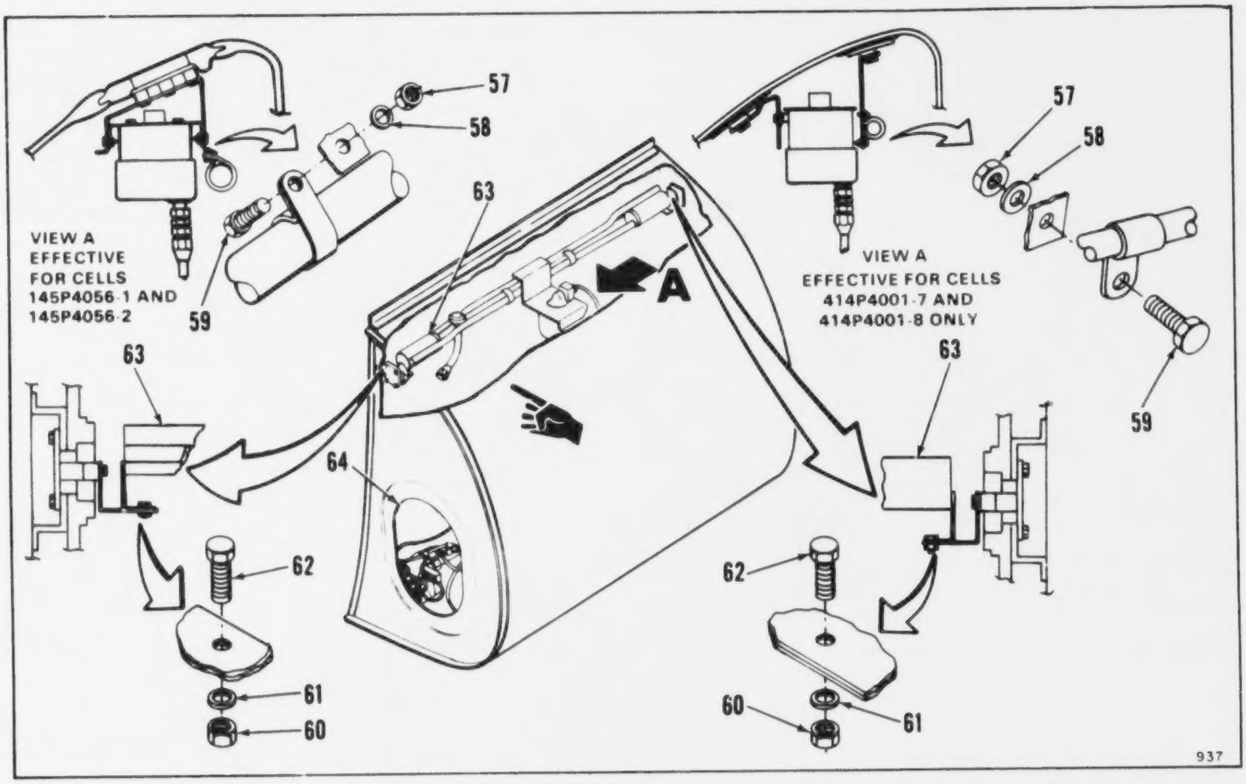
GO TO NEXT PAGE

10-65 REMOVE FORWARD OR AFT FUEL TANK VENT ASSEMBLY (Continued) 10-65

20. **Remove** nut (57), washer (58), and **screw (59).**
21. **Remove** four nuts (60), washers (61), and **screws (62). Tag and remove vent assembly (63).**
22. Cover access (64). Use barrier material (E80) and tape (E388).


57
58
VIEW A
EFFECTIVE
FOR CELLS
145P4056-1 AND
145P4056-2
59
63
63
A
64
62
61
60
VIEW A
EFFECTIVE FOR CELLS
414P4001-7 AND
414P4001-8 ONLY
57
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63
62
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61
937

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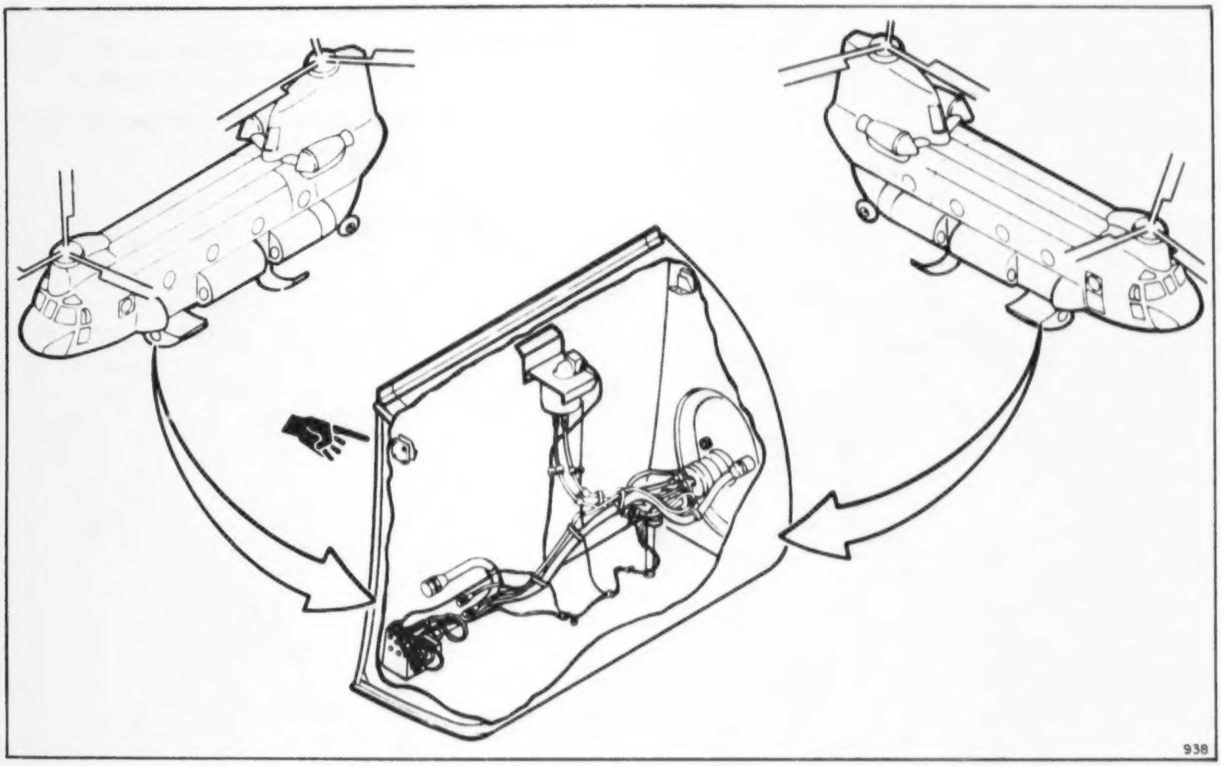
10-65 REMOVE FORWARD OR AFT FUEL TANK VENT ASSEMBLY (Continued) 10-65

FOLLOW-ON MAINTENANCE:

None



END OF TASK

10-66 INSTALL FORWARD OR AFT FUEL TANK VENT ASSEMBLY 10-66

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Cloths (E135)
Dry Cleaning Solvent (E162)
Gloves (E186)

Personnel Required:

Medium Helicopter Repairer
Inspector

References:

TM 55-1520-240-23P
TM 55-1520-240-T

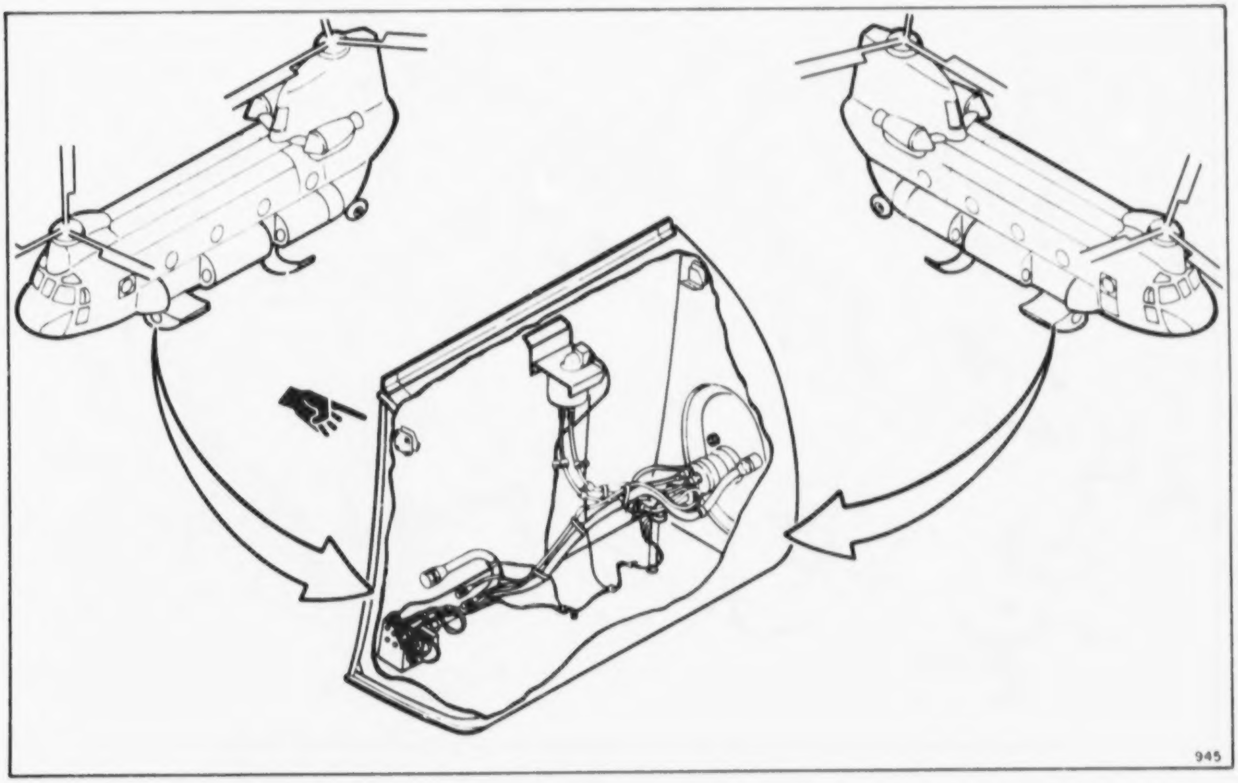
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

CAUTION

Do not puncture or scratch lining of fuel cell. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel cell and flush fuel system.



GO TO NEXT PAGE

10-66 INSTALL FORWARD OR AFT FUEL TANK VENT ASSEMBLY (Continued) 10-66

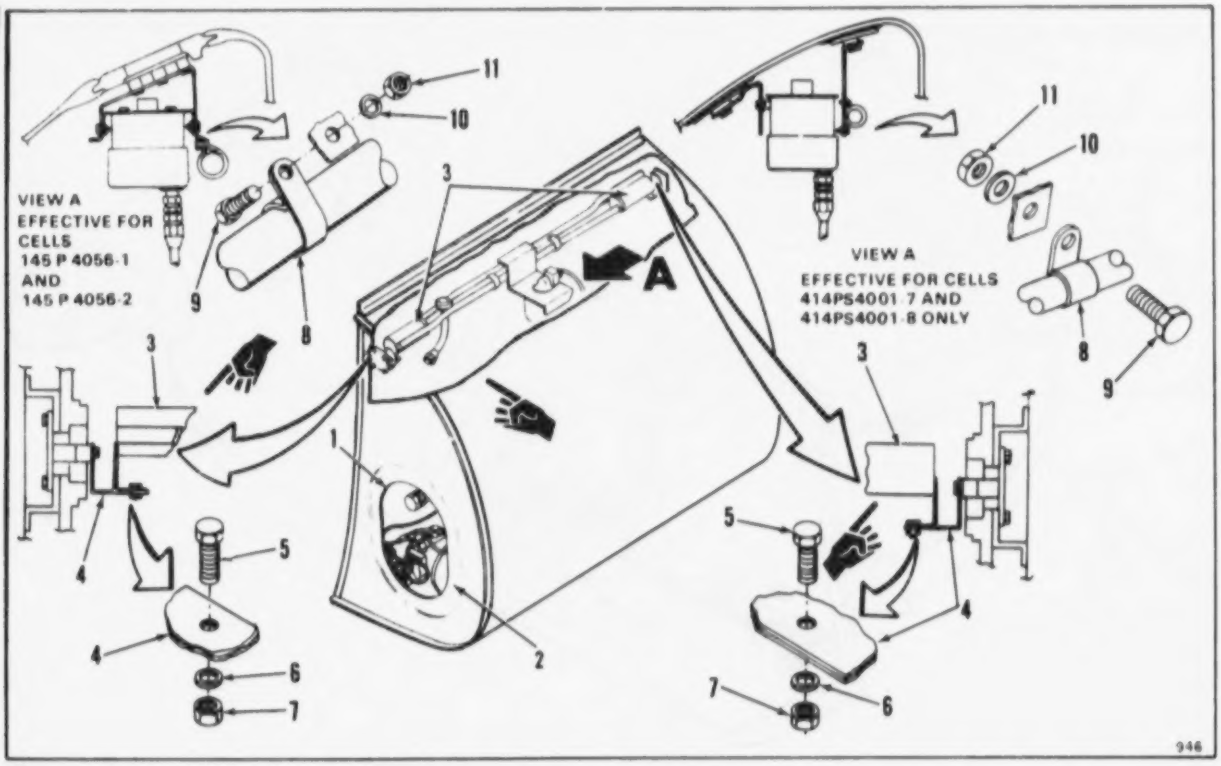
NOTE

Procedure is same to install No. 1 and No. 2 forward or aft fuel tank vent assembly. No. 1 (left) forward fuel tank vent assembly is shown here.

WARNING

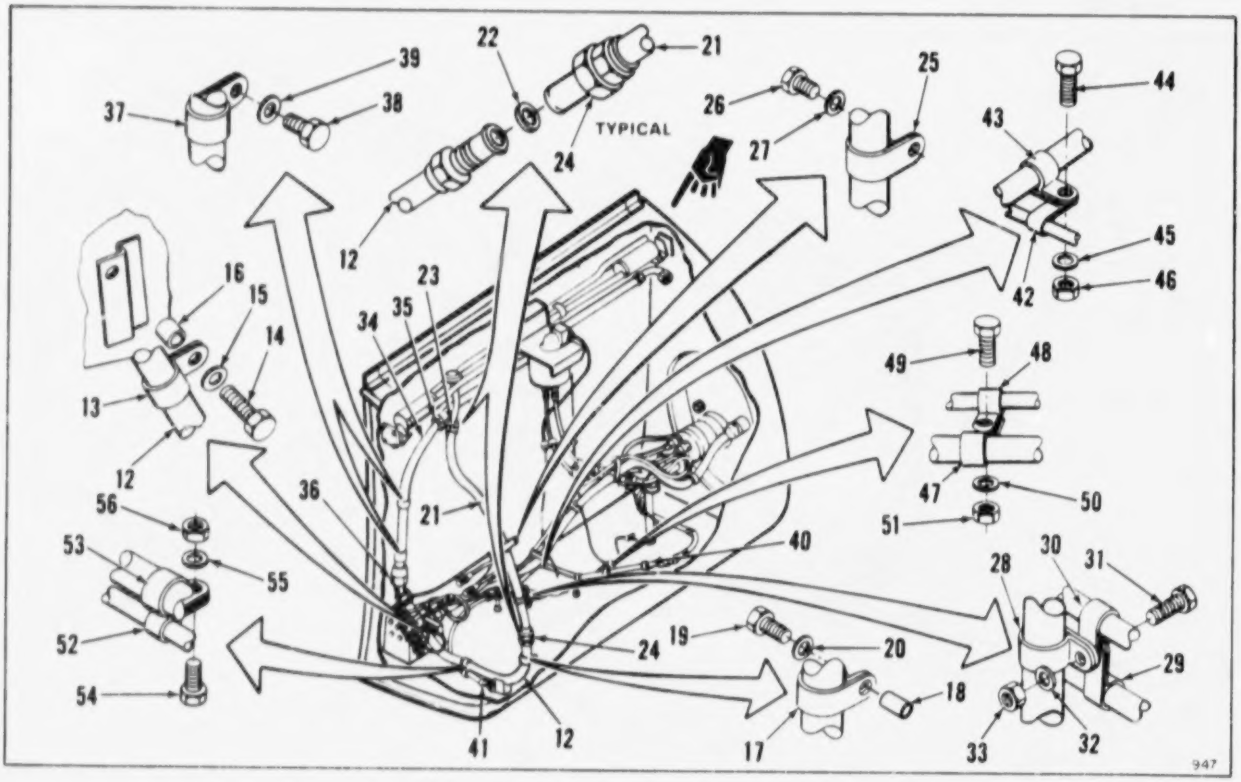
Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Remove barrier material and tape from forward access hole (1).
2. Remove tape residue from face of tank (2). Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).
3. **Position vent assembly (3)** on two brackets (4). **Install four screws (5),** washers (6), and nuts (7).
4. **Position clamp (8). Install screw (9),** washer (10), and nut (11).


11
10
VIEW A
EFFECTIVE FOR
CELLS
145 P 4056-1
AND
145 P 4056-2
3
9
8
A
3
1
5
4
4
6
7
2
11
10
VIEW A
EFFECTIVE FOR CELLS
414PS4001-7 AND
414PS4001-8 ONLY
8
9
3
5
4
7
6
946

10-66 INSTALL FORWARD OR AFT FUEL TANK VENT ASSEMBLY (Continued) 10-66

5. Remove tags and **position tube (12) and clamp (13). Install screw (14),** washer (15), and spacer (16).
6. **Position clamp (17) and spacer (18). Install screw (19)** and washer (20).
7. Remove tags and position hose (21) and ring (22). **Connect hose connectors (23 and 24).**
8. **Position clamp (25). Install screw (26)** and washer (27).
9. **On aft tank only, position hose clamp (28) and two hose clamps (29 and 30).**
10. **Install screw (31)**, washer (32) and nut (33).
11. Remove tags and **position hose (34). Position ring (22) at each end of hose. Connect hose connectors (35 and 36).**
12. **Position two clamps (37). Install two screws (38)** and washers (39).
13. Remove tags and **position pipe assembly (40). Connect hose connector (41).**
14. **Position clamps (42 and 43). Install screw (44)**, washer (45), and nut (46).
15. **Position clamps (47 and 48). Install screw (49)**, washer (50), and nut (51).
16. **Position clamps (52 and 53). Install screw (54),** washer (55), and nut (56).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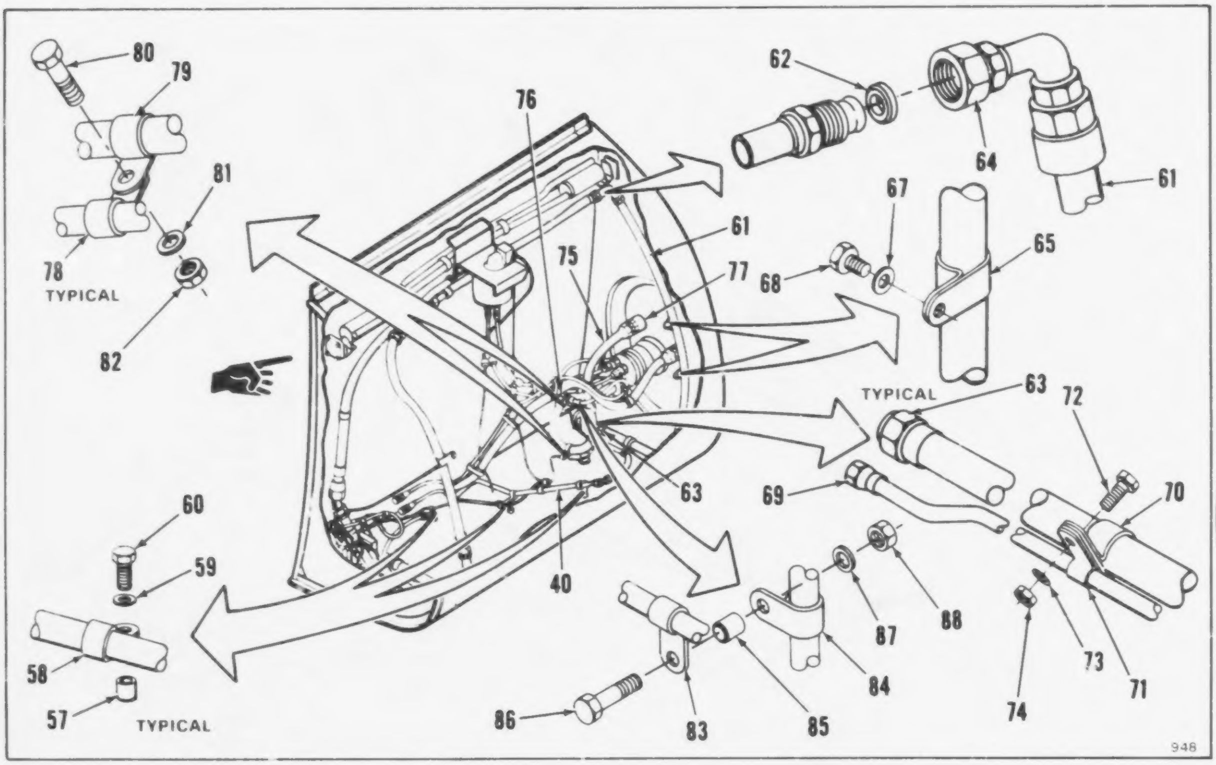
GO TO NEXT PAGE

10-66 INSTALL FORWARD OR AFT FUEL TANK VENT ASSEMBLY (Continued) 10-66

NOTE

Pipe assembly (40) must be positioned so that no high or low spots in the assembly can trap fluids. Clamps and spacers must be positioned to remove slack in hose and ensure a level tube.

17. Remove tags from **three spacers (57) and position as indicated.**
18. **Position three clamps (58). Install three** washers (59) and **screws (60).**
19. Check that no high or low points occur in pipe assembly (40).
20. Remove tags and **position hose (61) and ring (62). Connect hose connectors (63 and 64).**
21. **Position two clamps (65). Install two** washers (67) and **screws (68).**
22. **Connect hose connector (69). Position clamps (70 and 71). Install screw (72),** washer (73), and nut (74).
23. Remove tags and position hose (75). **Connect hose connectors (76 and 77).**
24. On forward fuel tank only, **position two clamps (78 and 79). Install two screws (80),** washers (81), and nuts (82).
25. **On forward fuel tank only, position two clamps (83 and 84) and spacer (85). Install screw (86),** washer (87), and nut (88).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GO TO NEXT PAGE

10-66 INSTALL FORWARD OR AFT FUEL TANK VENT ASSEMBLY (Continued) 10-66

INSPECT

FOLLOW-ON MAINTENANCE:

Pressure test vent system (Task 10-117).

Install forward access door on forward or aft auxiliary tank (Task 10-70 or 10-80).

For forward auxiliary fuel tank only, raise fuel tank on hinges (Task 10-26).

Install fuel quantity transmitter (Task 8-82).

Test fuel tank after installation (Task 10-27 or 10-32).

Perform vent system flow test (Task 10-118).

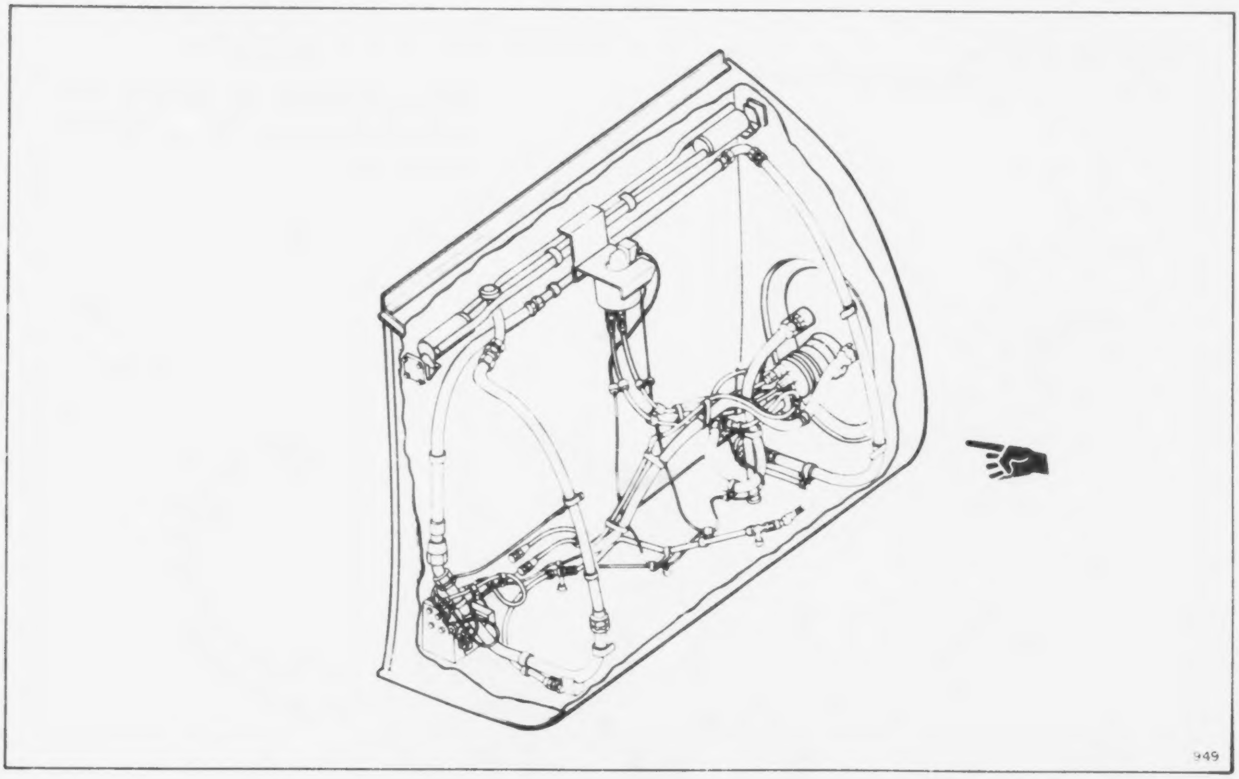
Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Check for leaks (Task 10-4).

Perform operational check of fuel system (TM 55-1520-240-T).



END OF TASK

10-67 REMOVE FORWARD TANK FUEL LINES, AND ELECTRICAL WIRING 10-67

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Barrier Material (E80)
Tape (E388)
Paper Tags (E264)

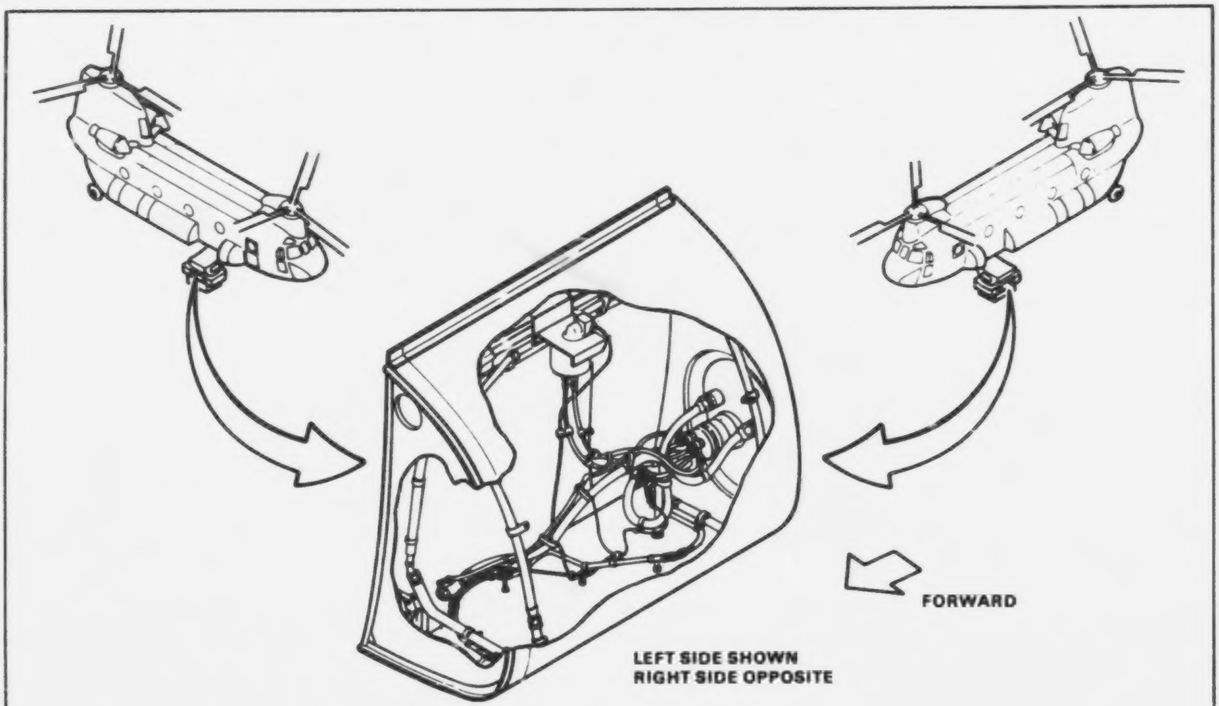
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power OFF
Helicopter Grounded (Task 1-29)
Forward Tank Defueled (Task 10-34 or 10-35)
Fuel Quantity Transmitter Removed (Task 8-81)
Forward Fuel Tank Lowered On Hinges (Task 10-23)
Forward Fuel Tank Boost Pump Removed (Task 10-69)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.



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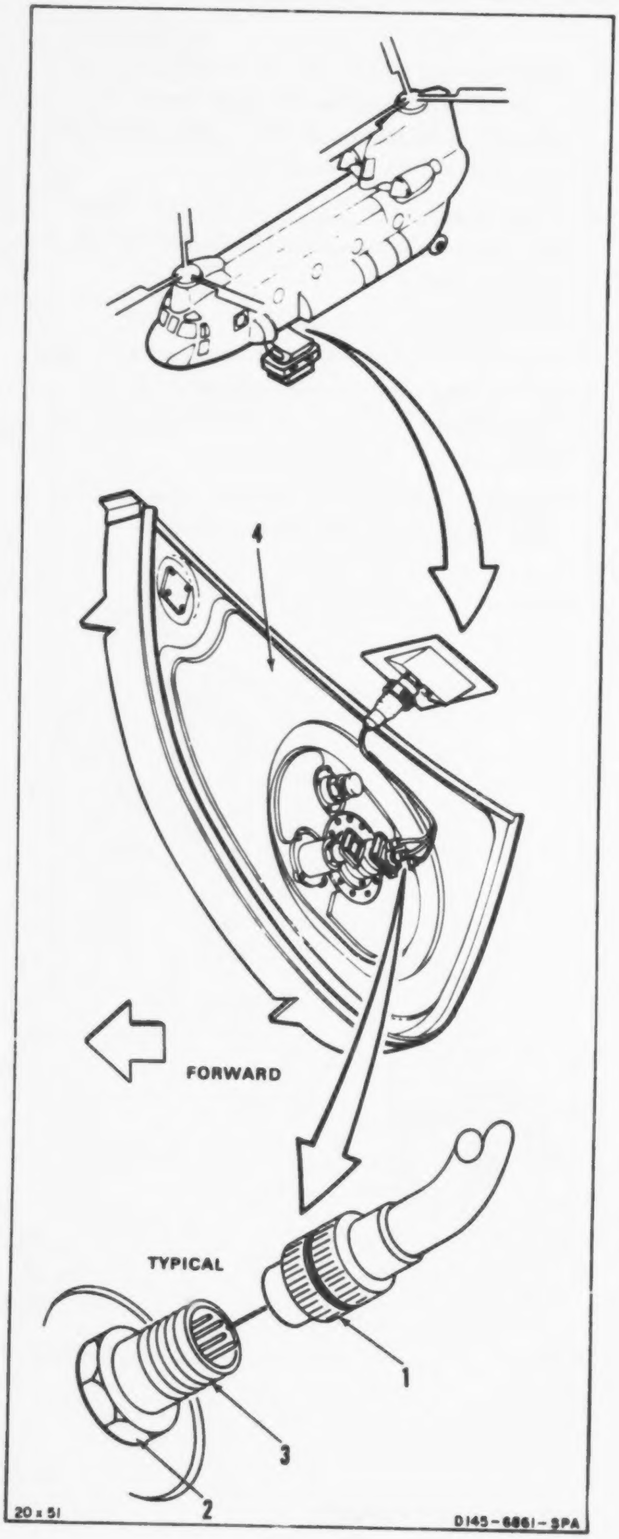
10-67 REMOVE FORWARD TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-67

NOTE

Procedure is same to remove No. 1 or No. 2 forward tank fuel lines and electrical wiring. No. 1 (left) forward tank removal is shown here.

1. Remove lockwire and **disconnect three electrical connectors (1).**
2. **Remove** lockwire and **three locknuts (2).**
3. **Push three electrical receptacles (3) into fuel tank (4). Cover holes in tank.** Use barrier material (E80) and tape (E388).



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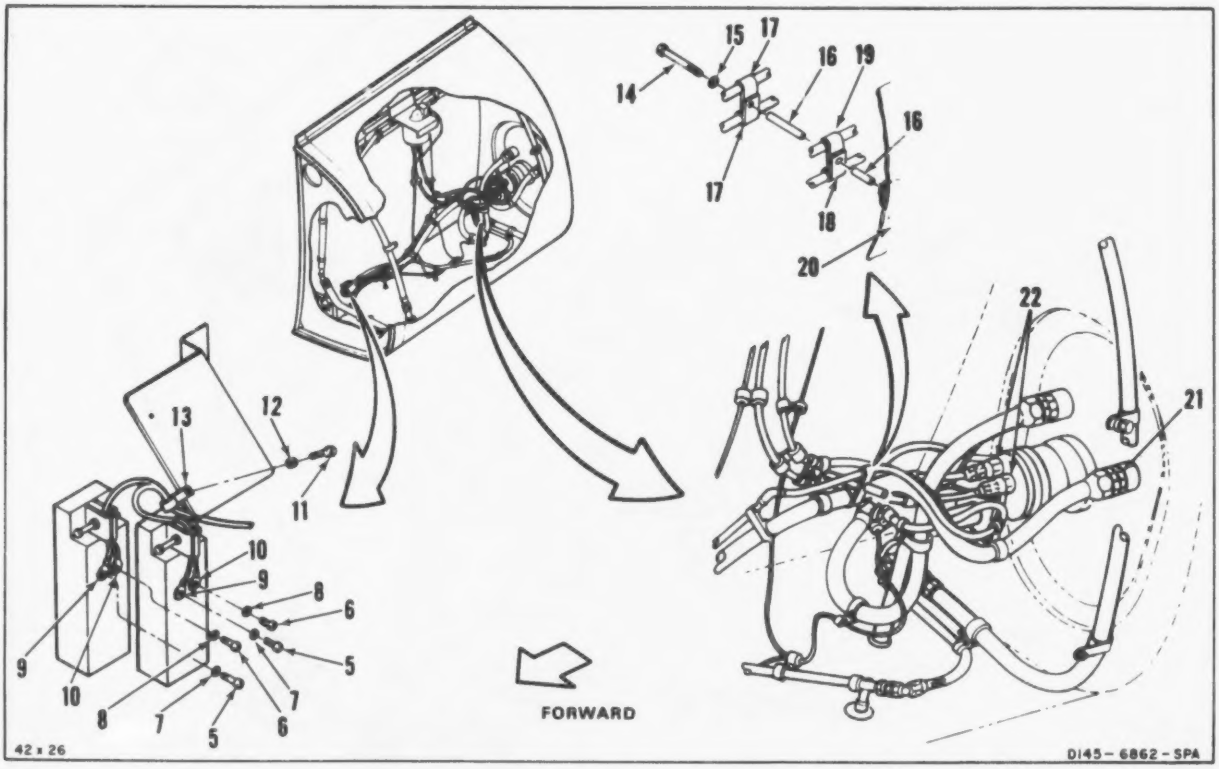
10-67 REMOVE FORWARD TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-67

4. Remove four screws (5 and 6) and washers (7 and 8). Tag and **disconnect four electrical wire terminals (9 and 10).** Install four screws and washers.
5. Remove screw (11) and washer (12). **Disconnect cable clamp (13).** Install screw and washer.
6. Remove screw (14), washer (15), and spacers (16). **Disconnect two hose clamps (17), hose clamp (18), and electrical cable clamp (19)** from fuel cell mounting plate (20).
7. Tag and **disconnect hose connector (21) and two hose connectors (22).**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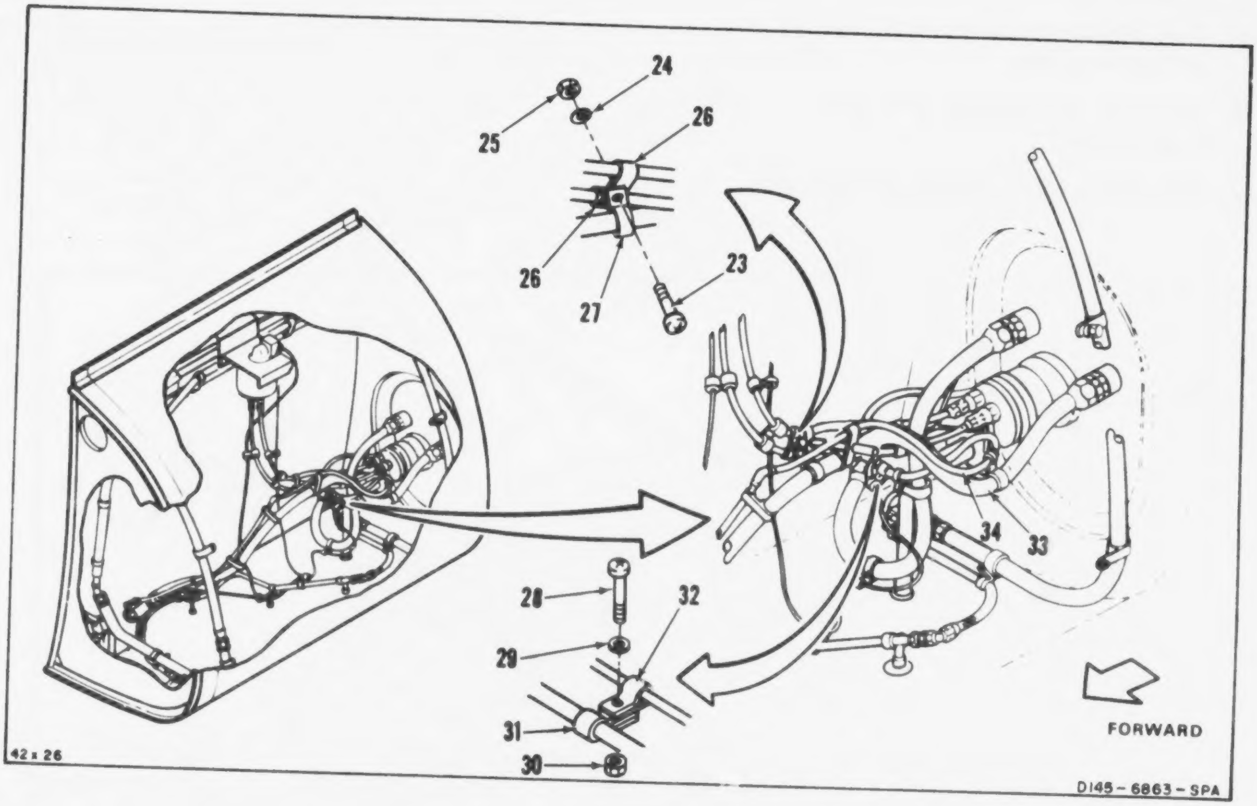
GO TO NEXT PAGE

10-67 REMOVE FORWARD TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-67

8. Remove screw (23), washer (24) and nut (25). **Disconnect two hose clamps (26)** from hose clamp (27).

9. Remove screw (28), washer (29) and nut (30). **Disconnect electrical wire clamp (31)** from electrical cable clamp (32).

10. Tag and **remove hose (33) and electrical cable (34)** as unit.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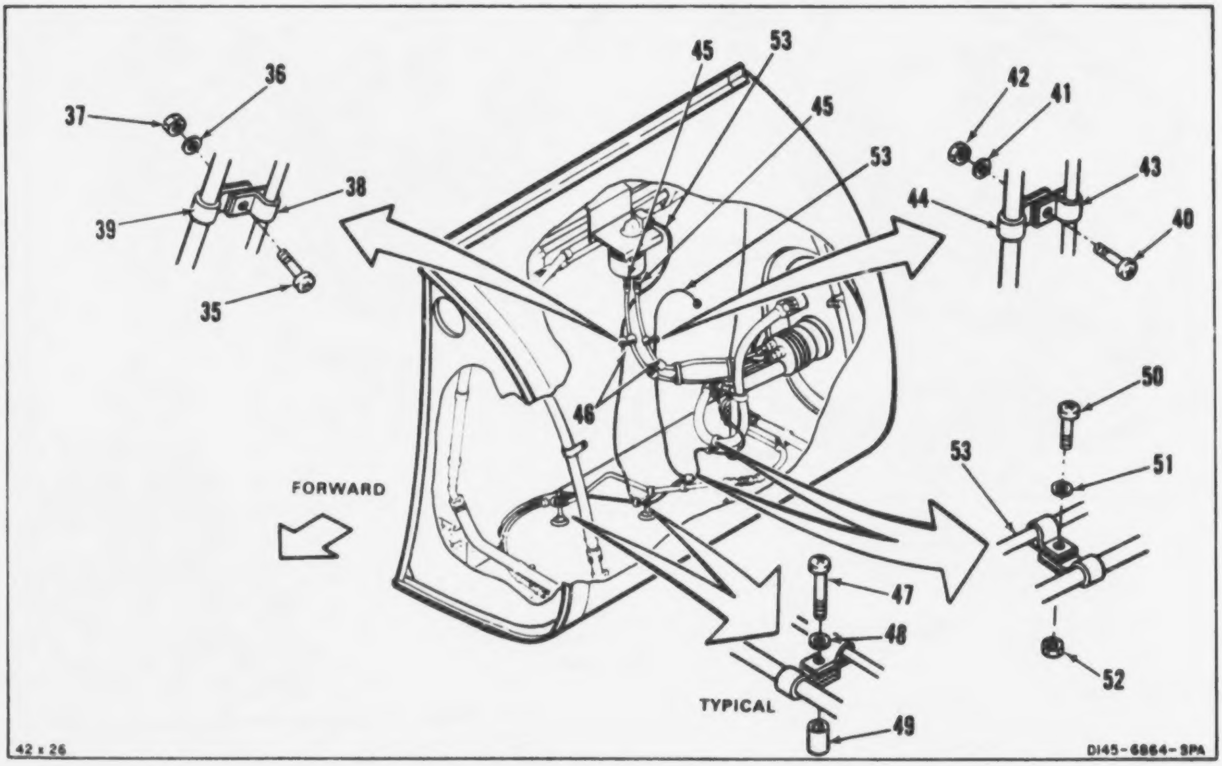
GO TO NEXT PAGE

10-67 REMOVE FORWARD TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-67

11. Remove screw (35), washer (36), and nut (37). **Disconnect hose clamp (38) from electrical clamp (39).**
12. Remove screw (40), washer (41) and nut (42). **Disconnect hose clamp (43) from electrical clamp (44).**
13. **Disconnect two flexible hose connectors (45).**
14. **Tag and remove two hoses (46)** as unit.
15. **Remove two screws (47),** washers (48), and spacers (49).
16. **Remove two screws (50),** washers (51) and nuts (52).
17. Tag and **remove electrical wires (53).**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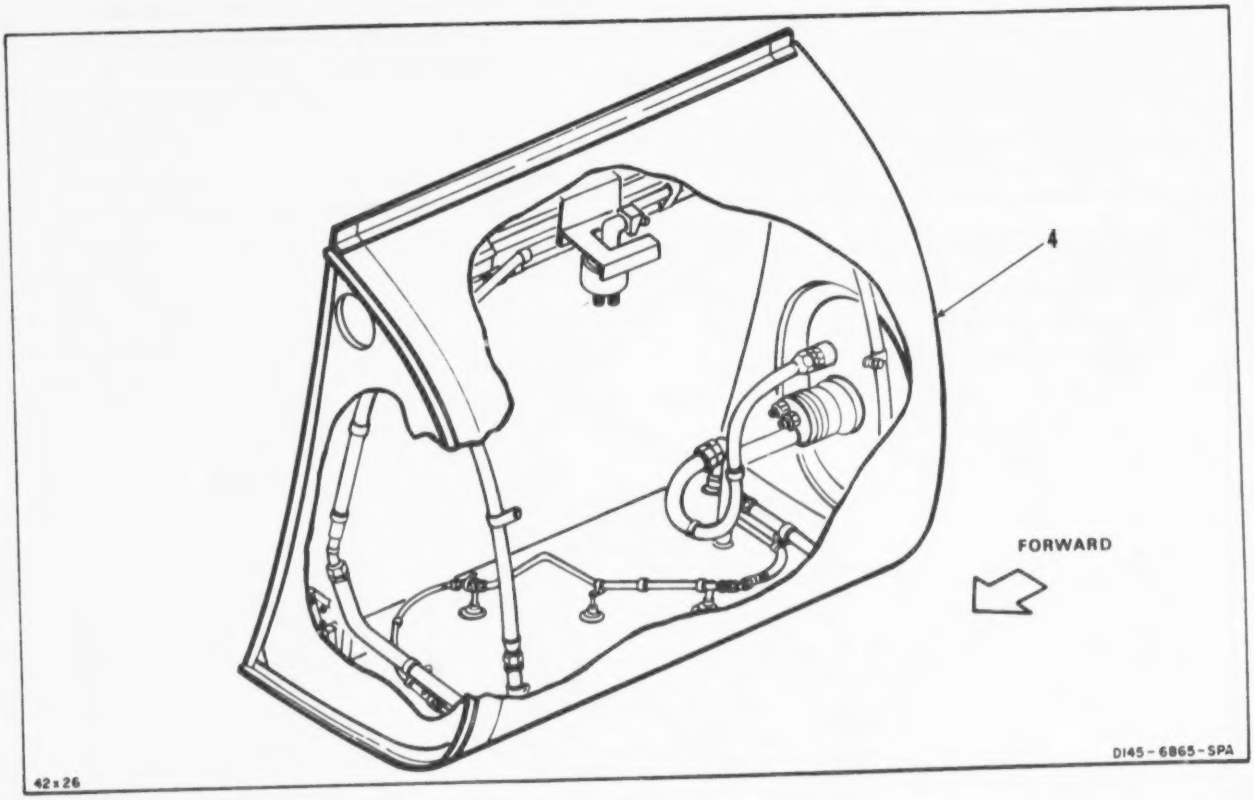
10-67 REMOVE FORWARD TANK FUEL LINES AND ELECTRICAL WIRING (Continued)

18. Cover access hole in end of fuel tank (4). Use barrier material (E80) and tape (E388).

FOLLOW-ON MAINTENANCE:

None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END OF TASK

10-68 INSTALL FORWARD TANK FUEL LINES AND ELECTRICAL WIRING 10-68

INITIAL SETUP

Applicable Configurations:

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Dry Cleaning Solvent (E162)
Gloves (E186)
Cloths (E135)
Lockwire (E227)

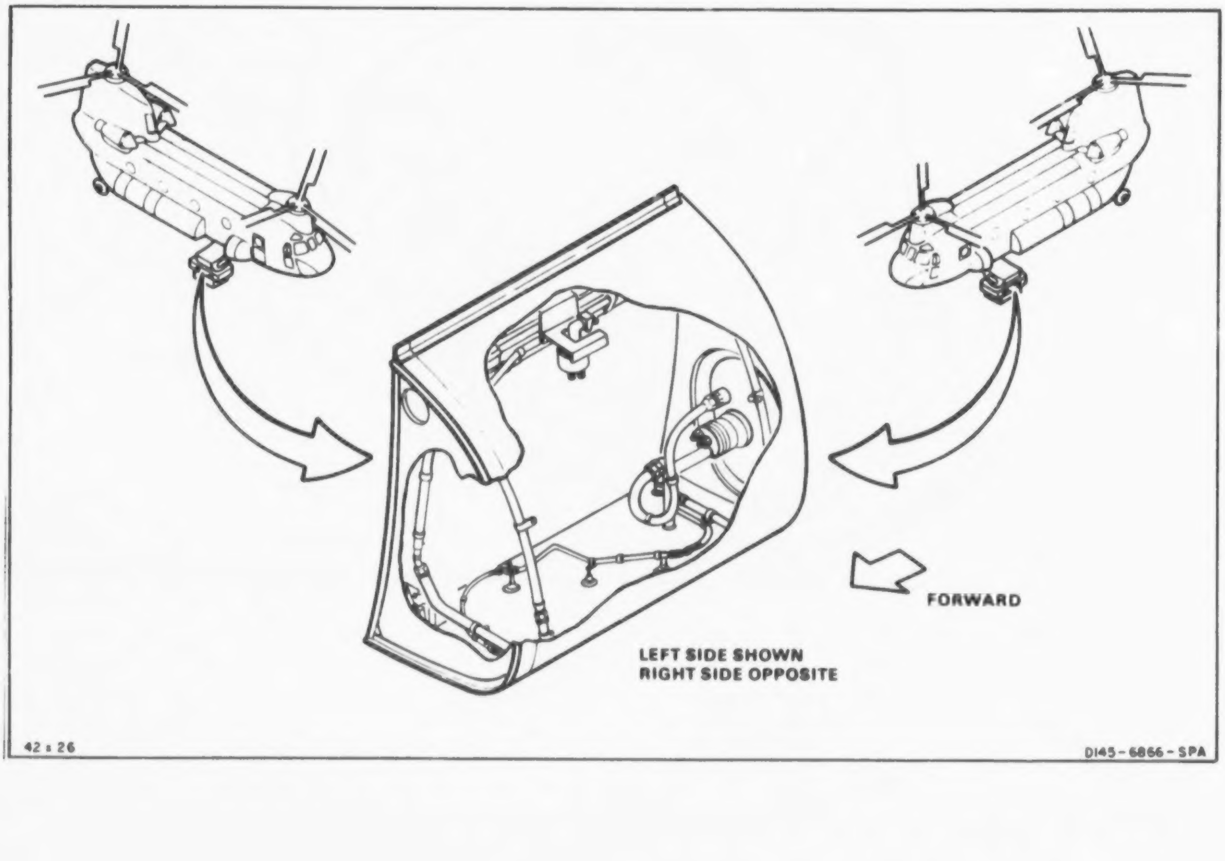
Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

References:
TM 55-1520-240-23P
Task 1-13

General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.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10-68 INSTALL FORWARD TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-68

NOTE

Procedure is same to install No. 1 or No. 2 forward tank lines and electrical wiring. No 1 (left) forward tank installation is shown here.

WARNING

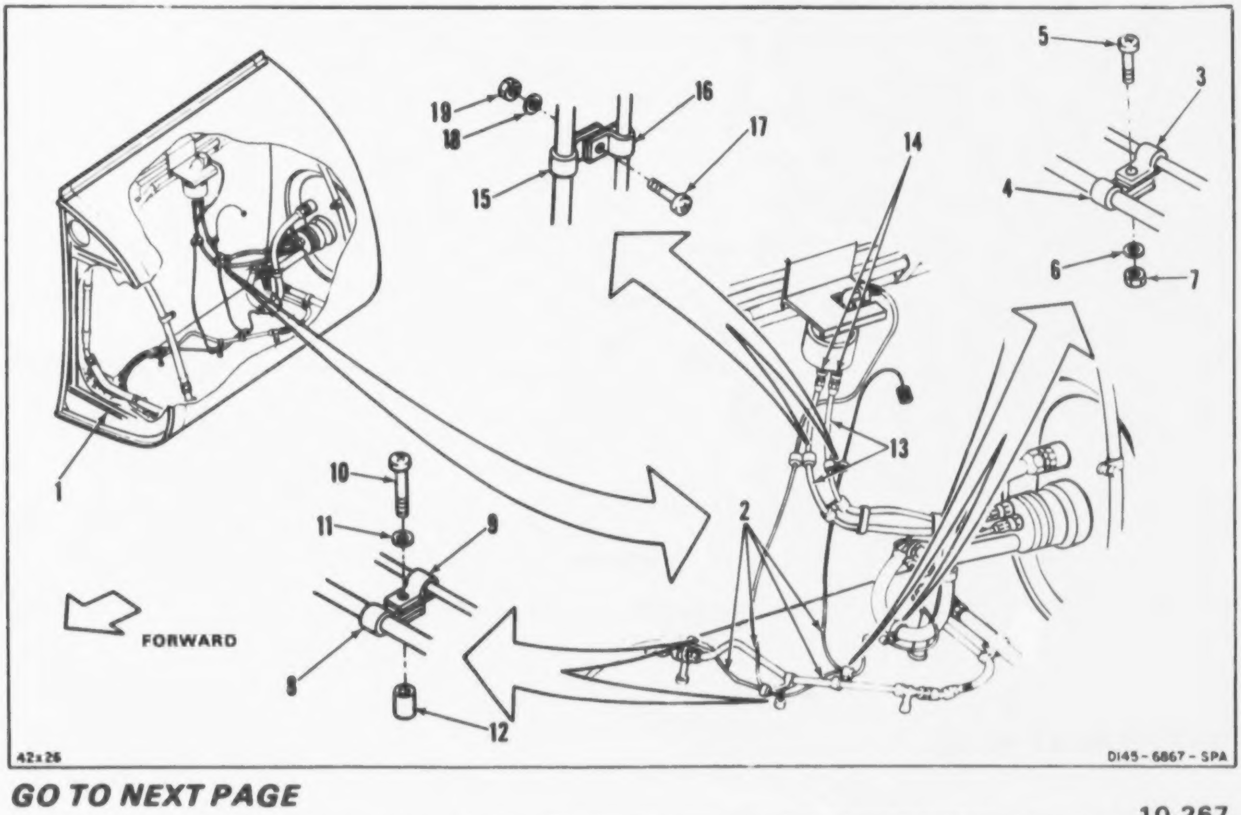
Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Remove barrier material and tape from hole in tank (1). Clean tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).
2. Remove tags and **position electrical wires (2).**
3. **Position two electrical wire clamps (3) and two tube clamps (4). Install two screws (5),** washers (6), and nuts (7).
4. **Position two tube clamps (8) and two electrical wire clamps (9). Install two screws (10),** washers (11), and spacers (12).
5. Remove tags and **position two hoses (13).**

CAUTION

Extreme care should be applied during installation and inspection to ensure that hose connectors are properly installed. Serious damage could occur to the helicopter if these hose end fittings are not properly torqued. (Refer to Task 1-13.)

6. **Connect two hoses connectors (14).**
7. **Position two electrical clamps (15) on two hose clamps (16). Install two screws (17),** washers (18) and nuts (19).



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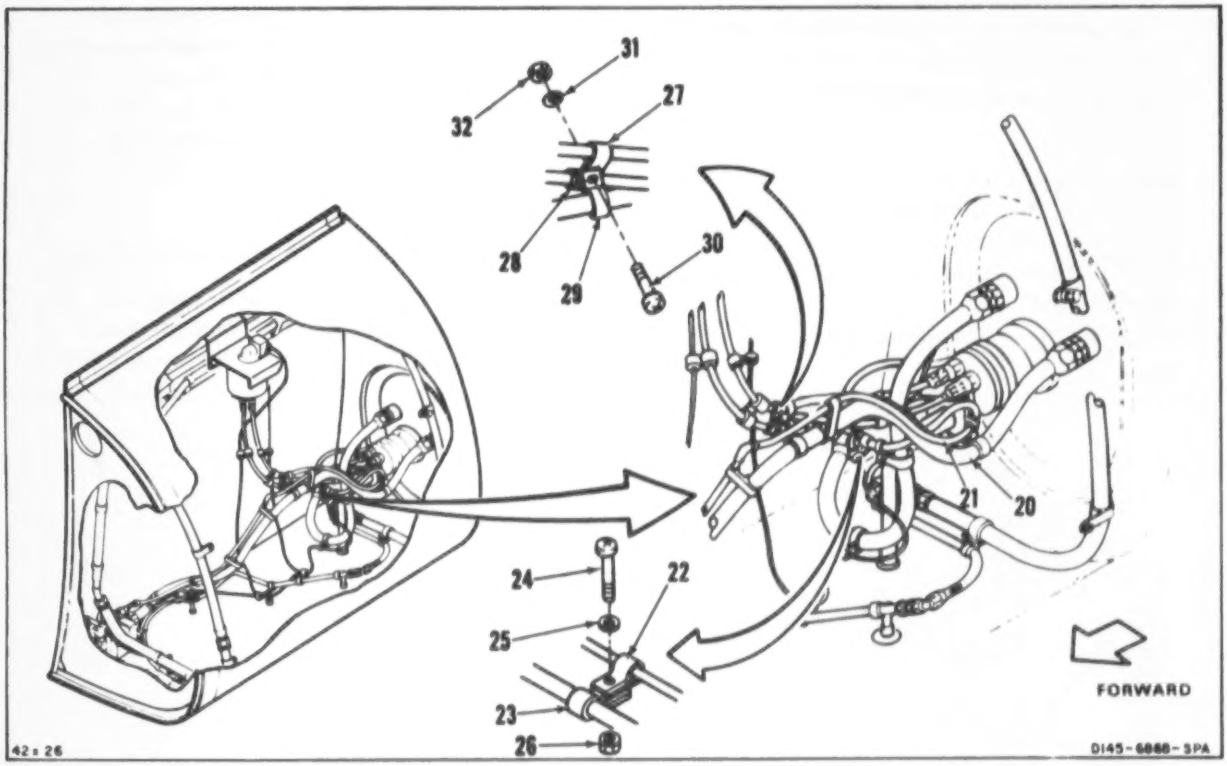
10-68 INSTALL FORWARD TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-68

8. Remove tags and **position unit of hose (20) and electrical cable (21).**
9. **Position electrical cable clamp (22) on electrical wire clamp (23). Install screw (24),** washer (25), and nut (26).
10. **Position two hose clamps (27 and 28) on hose clamp (29). Install screw (30),** washer (31) and nut (32).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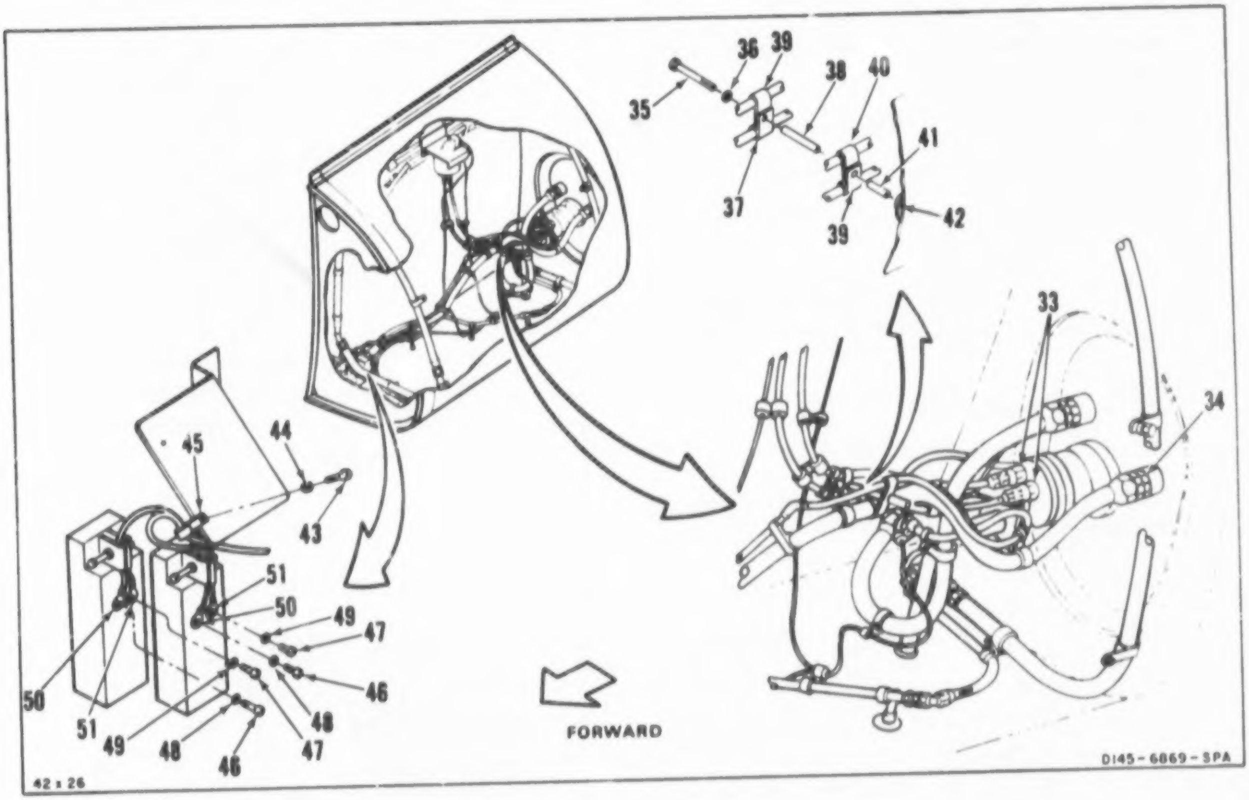
10-68 INSTALL FORWARD TANK FUEL LINES AND ELECTRICAL WIRING (Continued)

11. **Connect two hose connectors (33) and hose connector (34).** Remove tags.
12. Position screw (35) through washer (36), two hose clamps (37), spacer (38), hose clamp (39), electrical cable clamp (40) and spacer (41). **Install screw (35)** in fuel cell mounting plate (42).
13. Remove screw (43) and washer (44). **Position cable clamp (45). Install** washer and **screw.**
14. Remove four screws (46 and 47) and washers (48 and 49). Remove tags and **position four electrical terminals (50 and 51). Install** washers and **screws.**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10-68 INSTALL FORWARD TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-68

15. Remove barrier material and tape from three holes in tank (52). Clean tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).

16. Have helper, from inside tank, **push three receptacles (53) through holes in tank (52). Install three locknuts (54) on receptacles.** Install lockwire (E227).

17. **Connect three electrical connectors (55).** Install lockwire (E227).

INSPECT

FOLLOW-ON MAINTENANCE:

Install fuel tank boost pump (Task 10-70).

Perform vent system pressure test (Task 10-117).

Raise and install forward fuel tank (Task 10-26).

Install fuel quantity transmitter (Task 8-82).

Test forward fuel tank (Task 10-27).

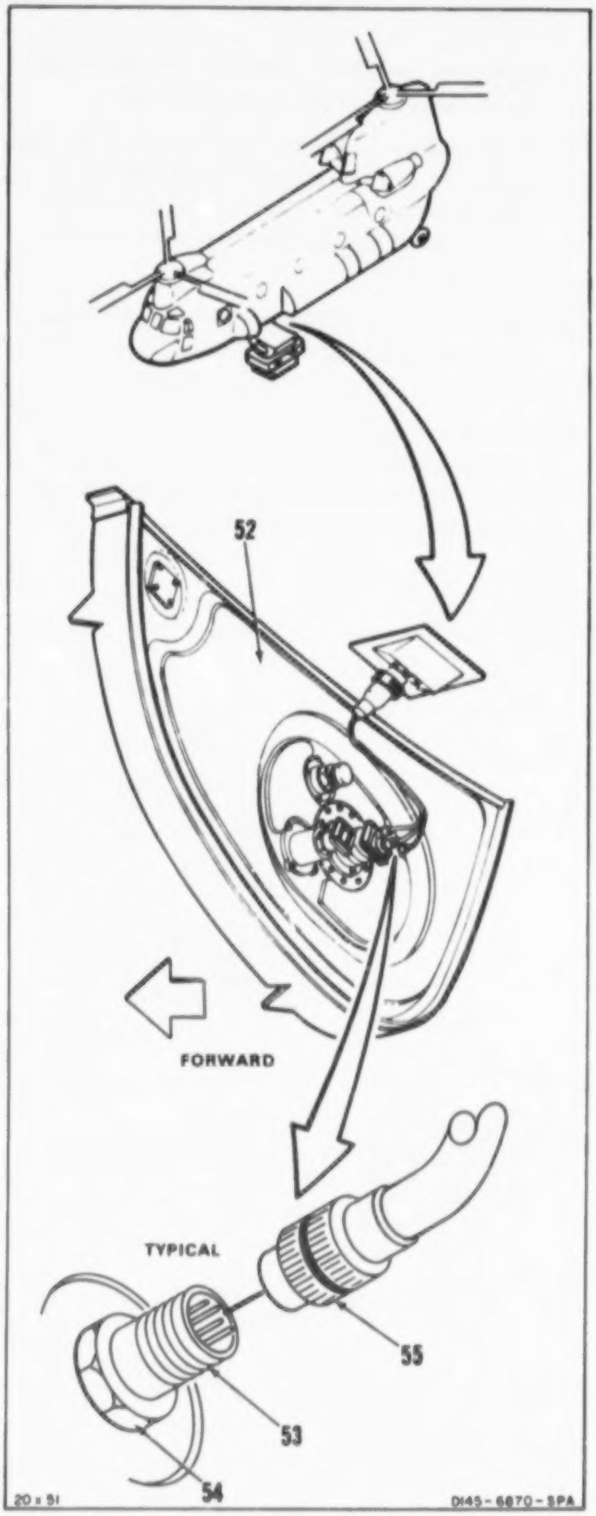
Perform vent system flow test (Task 10-118).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of appropriate fuel system (TM 55-1520-240-T).



END OF TASK

10-69 REMOVE FORWARD FUEL TANK BOOST PUMP 10-69

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Wrench, Open End, 1 1/8-Inch
Wrench, Open End, 1 1/2-Inch

Materials:
Barrier Material (E80)
Tape (E388)

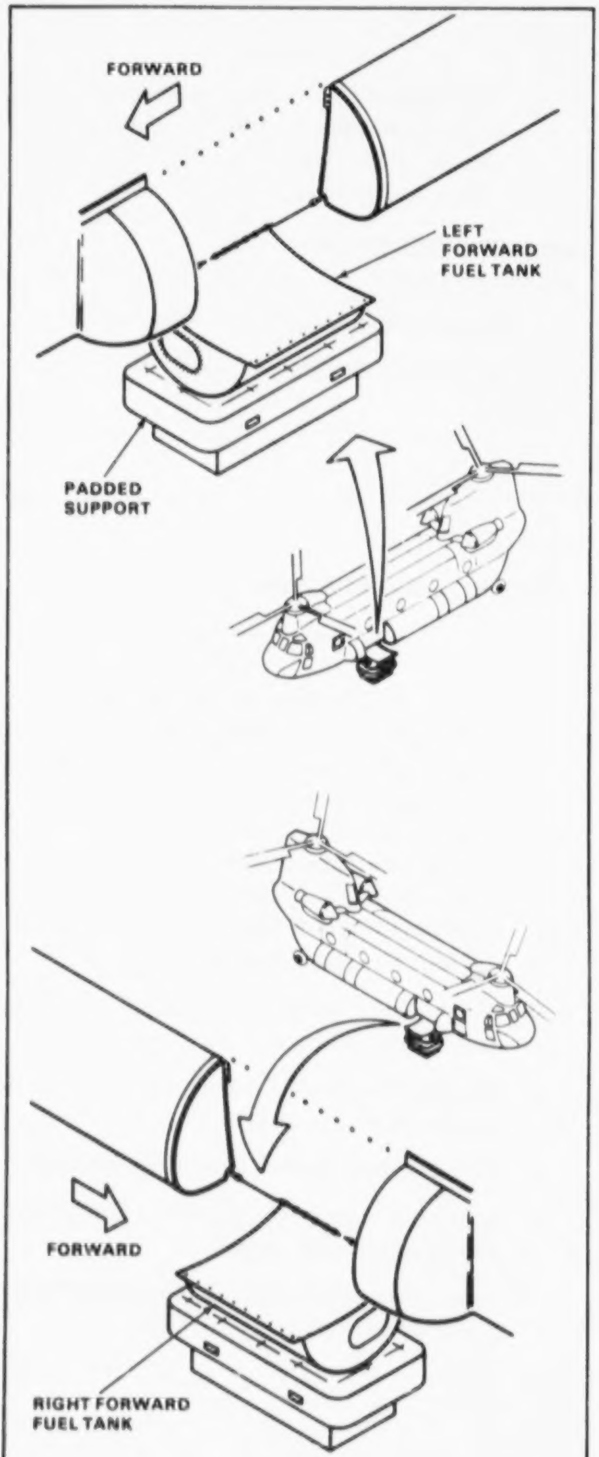
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Defuel Forward Fuel Tank (Task 10-34 or 10-35)
Forward Fuel Tank Lowered on Hinges (Task 10-23)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
LEFT FORWARD FUEL TANK
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20X51
D145-5800-SPA

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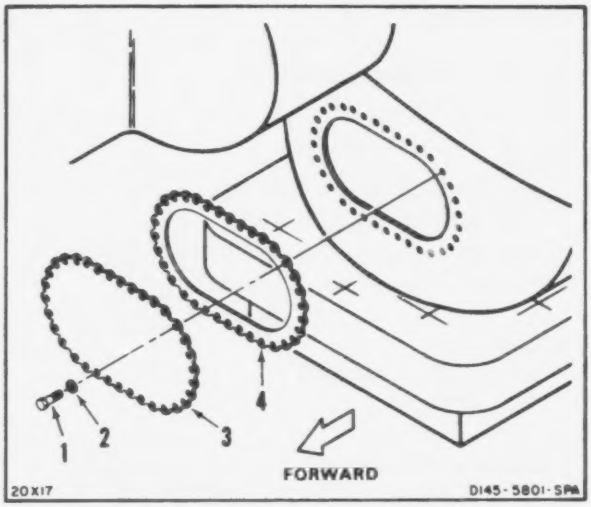
10-69 REMOVE FORWARD FUEL TANK BOOST PUMP (Continued) 10-69

NOTE

Procedure is same to remove boost pump from No. 1 or No. 2 fuel system forward fuel tank. Removal of No. 1 (left) boost pump is shown here.

REMOVE FORWARD ACCESS DOOR

1. **Remove 30 bolts (1)** and washers (2).
2. **Remove door (3)** and gasket (4).

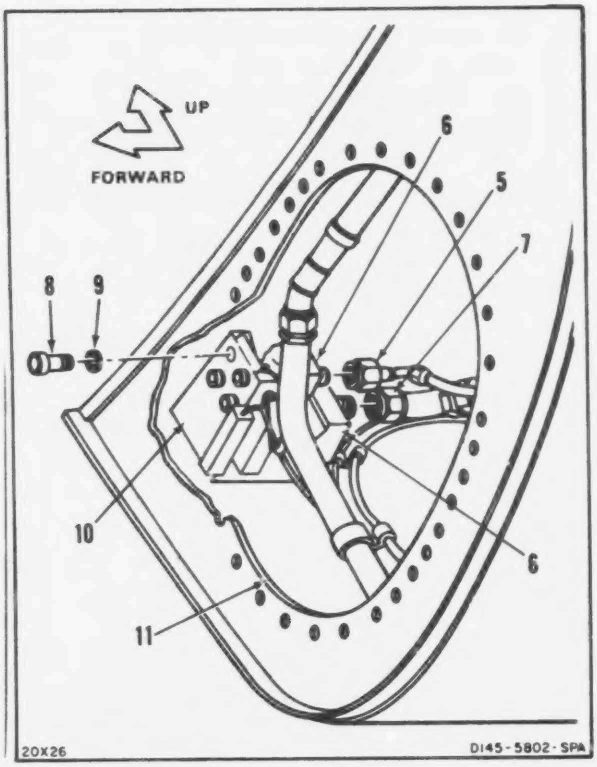


REMOVE BOOST PUMP

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

3. Remove lockwire and **disconnect electric connector (5)** from boost pump (6).
4. **Disconnect hose (7)** from boost pump (6). Cap boost pump. Plug hose.
5. **Remove four bolts (8)** and washers (9).
6. Maneuver boost pump (6) from pump bracket (10) and **remove pump.**
7. Cover access hole in tank (11) with barrier material (E80) and tape (E388).



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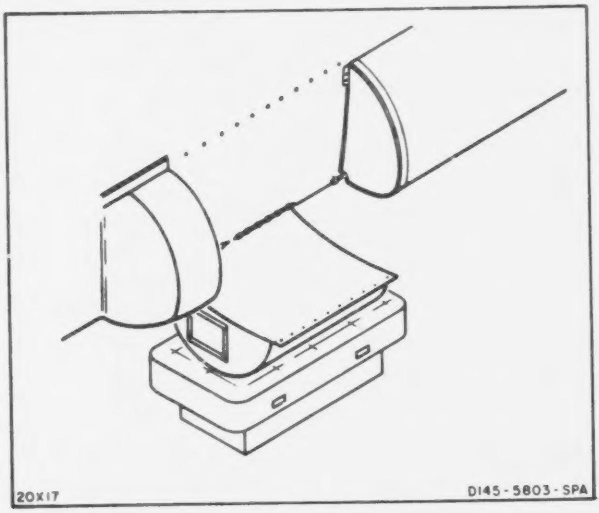
10-69 REMOVE FORWARD FUEL TANK BOOST PUMP (Continued) 10-69

FOLLOW-ON MAINTENANCE:

None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END OF TASK

10-70 INSTALL FORWARD FUEL TANK BOOST PUMP 10-70

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 30 to 150 Inch-Pounds
Torque Wrench, 700 to 1600 Inch-Pounds
Wrench, Open End, 1 1/8-Inch
Wrench, Open End, 1 1/2-Inch

Materials:
Lockwire (E233)
Cloths (E135)
Dry Cleaning Solvent (E162)
Gloves (E186)

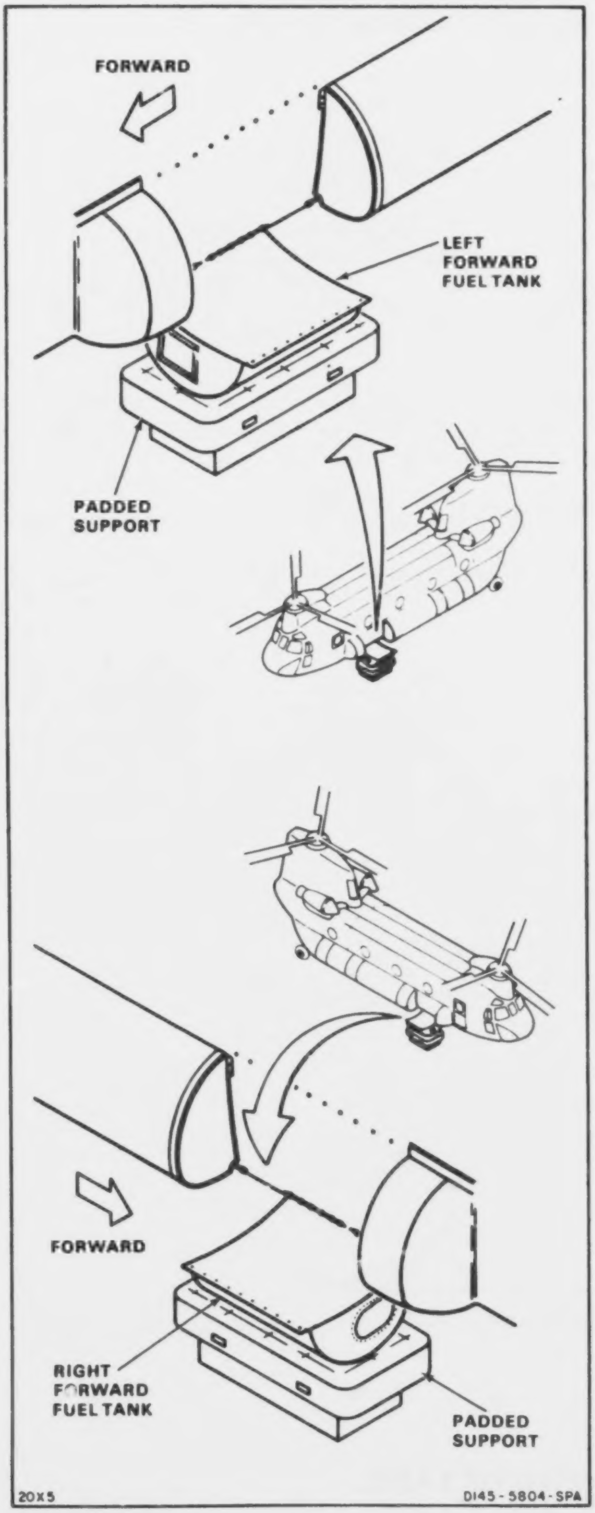
Parts:
Gasket

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P
Task 10-117

WARNING

All regulations and instructions for handling fuels shall be strictly observed.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LEFT FORWARD FUEL TANK
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PADDED SUPPORT
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D145-5804-SPA

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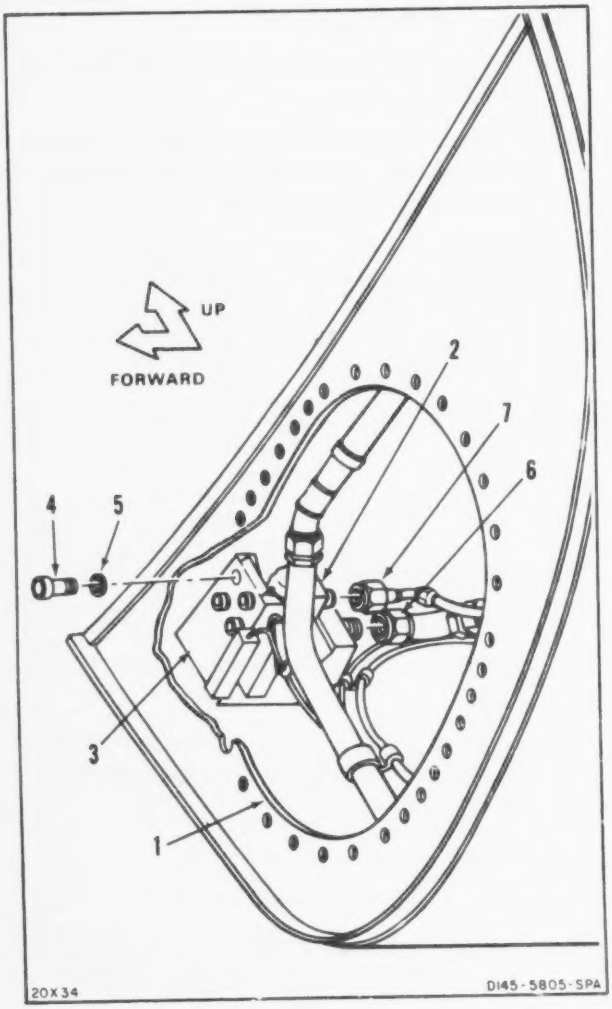
10-70 INSTALL FORWARD FUEL TANK BOOST PUMP (Continued)

NOTE

Procedure is same to install boost pump in No. 1 or No. 2 fuel system forward fuel tank. Installation of No. 1 (left) boost pump is shown here.

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



INSTALL BOOST PUMP

1. Remove barrier paper and tape covering access hole in tank (1). Clean tape residue from face of tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

2. **Position boost pump (2)** on pump bracket (3). **Install four bolts (4)** and washers (5).
3. Remove plug from hose (6) and cap from boost pump (2). **Connect hose** to boost pump. **Torque hose connector to 1125 inch-pounds.**
4. **Connect electrical connector (7)** to pump (2). Lockwire connector to pump. (Use lockwire E233).

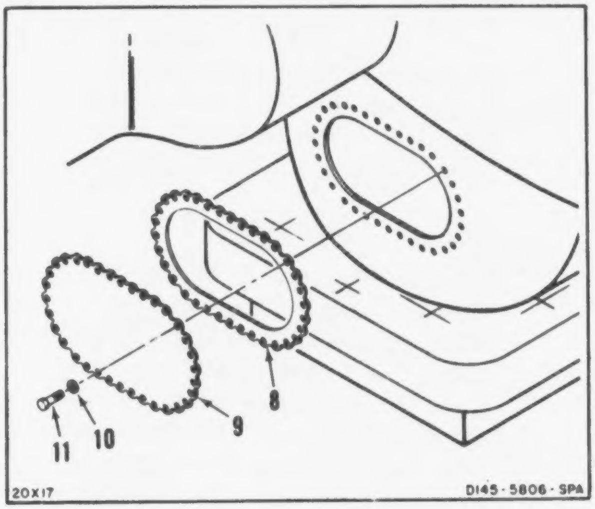
INSPECT

GO TO NEXT PAGE

10-70 INSTALL FORWARD FUEL TANK BOOST PUMP (Continued) 10-70

INSTALL ACCESS DOOR

5. Perform vent system pressure test (Task 10-117).
6. **Position gasket (8) and door (9). Install 30** washers (10) and **bolts (11). Torque bolts to 70 inch-pounds.**



FOLLOW-ON MAINTENANCE:

Install forward fuel tank (Task 10-26).

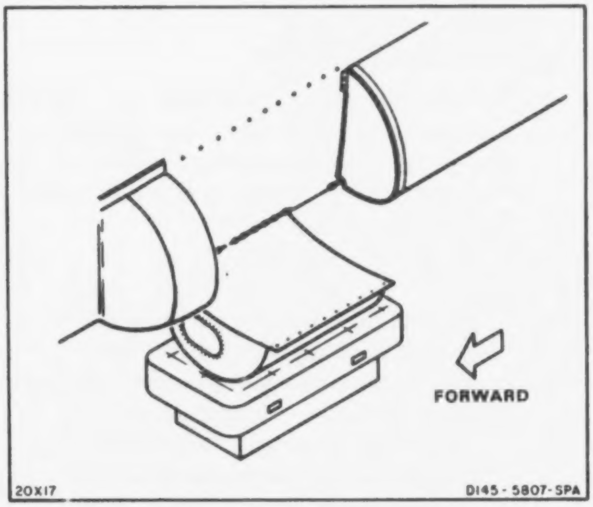
Perform vent system flow test (Task 10-118).

Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of appropriate fuel system (TM 55-1520-240-T).



END OF TASK

10-71 REMOVE FORWARD FUEL TANK FUEL LEVEL SHUTOFF VALVE

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloths (E135)
Barrier Material (E80)
Tape (E388)

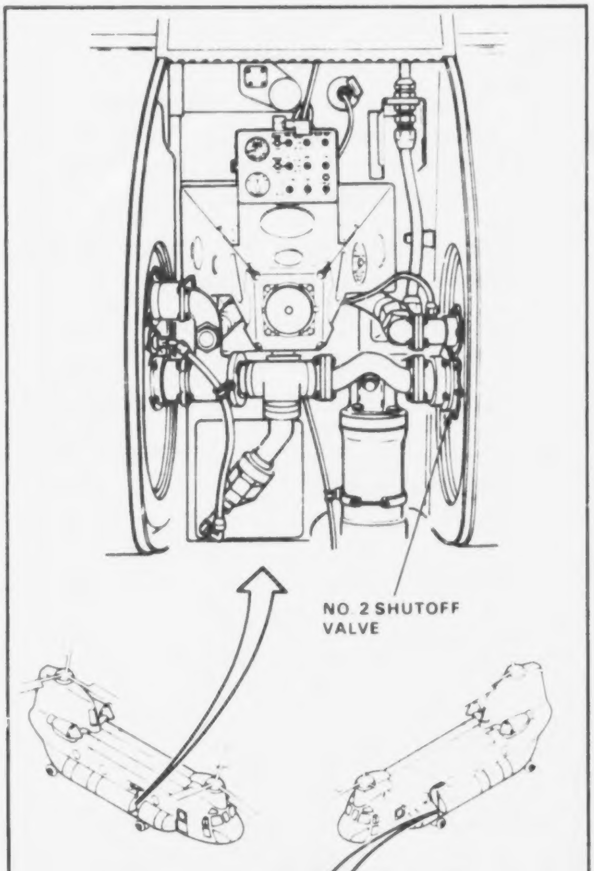
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Landing Gear Access Panel On Affected Side of Helicopter Opened (Task 2-2)
All Tanks on Affected Side of Helicopter Defueled and Both Crossover Valves Closed (Task 10-34 or 10-35)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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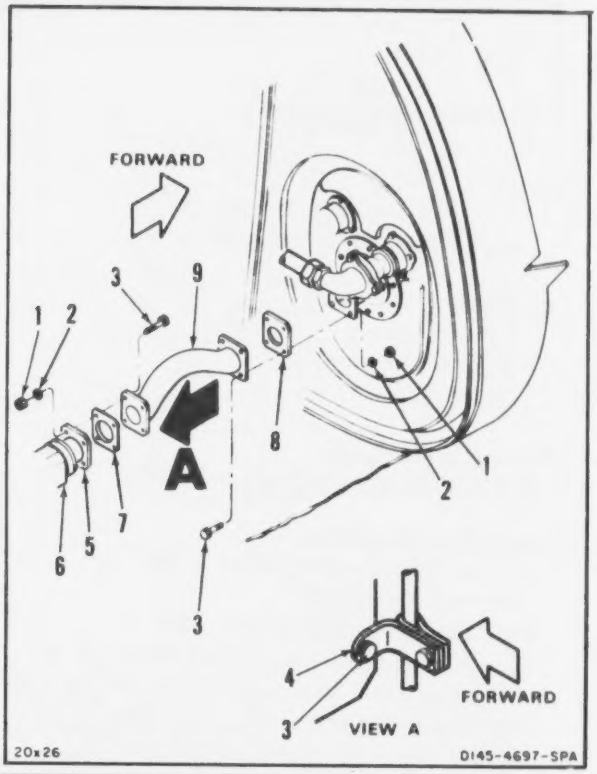
10-71 REMOVE FORWARD FUEL TANK FUEL LEVEL SHUTOFF VALVE (Continued) 10-71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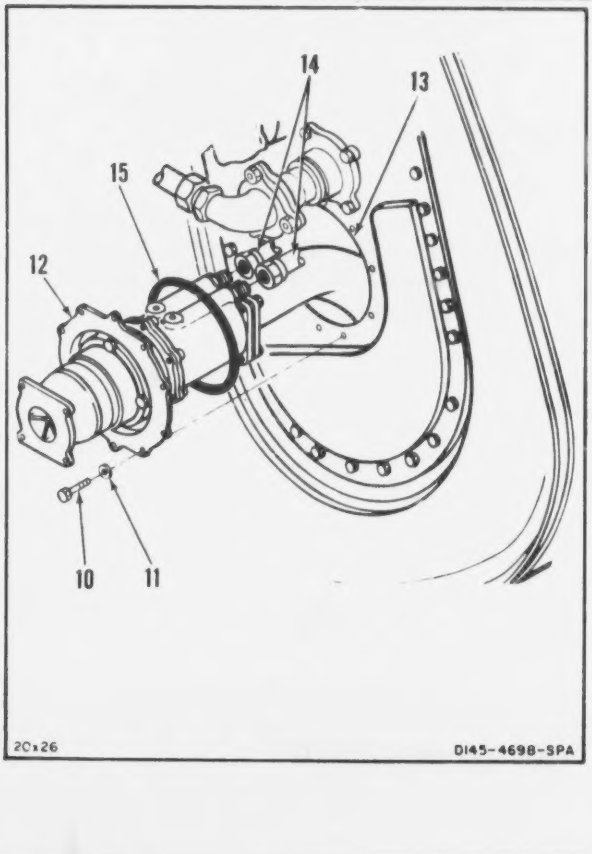
NOTE

Procedure is same to remove fuel level shutoff valve in No. 1 or No. 2 fuel system. Removal of No. 2 (right side) shutoff valve is shown here

1. **Remove eight nuts (1),** washers (2), and bolts (3). **Remove clip (4).**
2. Slide adapter (5) aft into fitting (6). Catch spilled fuel in grounded container.
3. **Remove** gaskets (7 and 8) and **tube (9).**
4. Cover hole in adapter (5). Use barrier material (E80) and tape (E388).


14
13
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10
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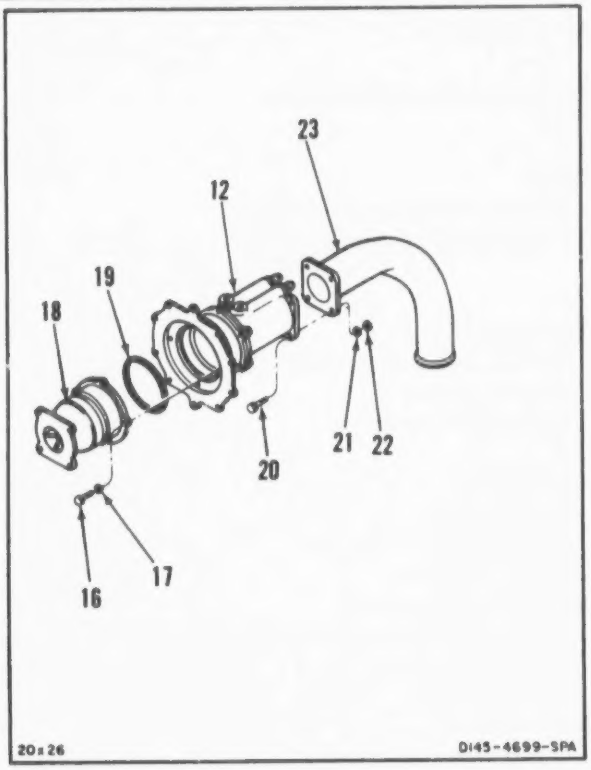
20x26
D145-4698-SPA

5. Remove 10 bolts (10) and washers (11).
6. Withdraw shutoff valve (12) from tank (13) for access to two hose connections (14). **Disconnect hose connections.**
7. **Maneuver shutoff valve (12) from tank (13).** Cover hole in tank. Use barrier material (E80) and tape (E388).
8. Remove packing (15) from flange of valve (12).

GO TO NEXT PAGE

10-71 REMOVE FORWARD FUEL TANK FUEL LEVEL SHUTOFF VALVE (Continued)

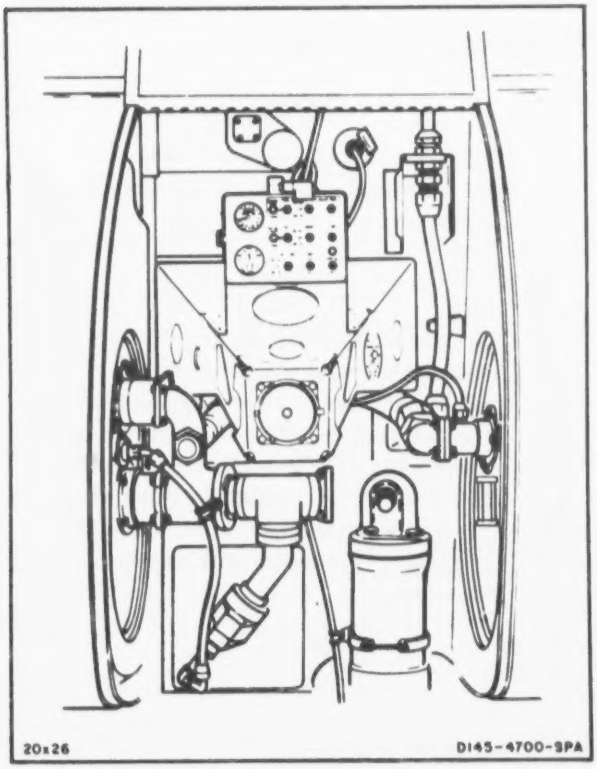
9. Remove four bolts (16) and washers (17). **Remove fitting (18)** and packing (19) from valve (12).
10. Remove four bolts (20), washers (21), and nuts (22). **Remove tube (23).**
11. Clean up spilled fuel. Use cloths (E135).



20x26 D145-4699-SPA

FOLLOW-ON MAINTENANCE:

None



20x26 D145-4700-SPA

END OF TASK

10-72 INSTALL FORWARD FUEL TANK FUEL LEVEL SHUTOFF VALVE 10-72

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Dry Cleaning Solvent (E162)
Cloths (E135)
Gloves (E186)

Parts:
Packings
Gaskets

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

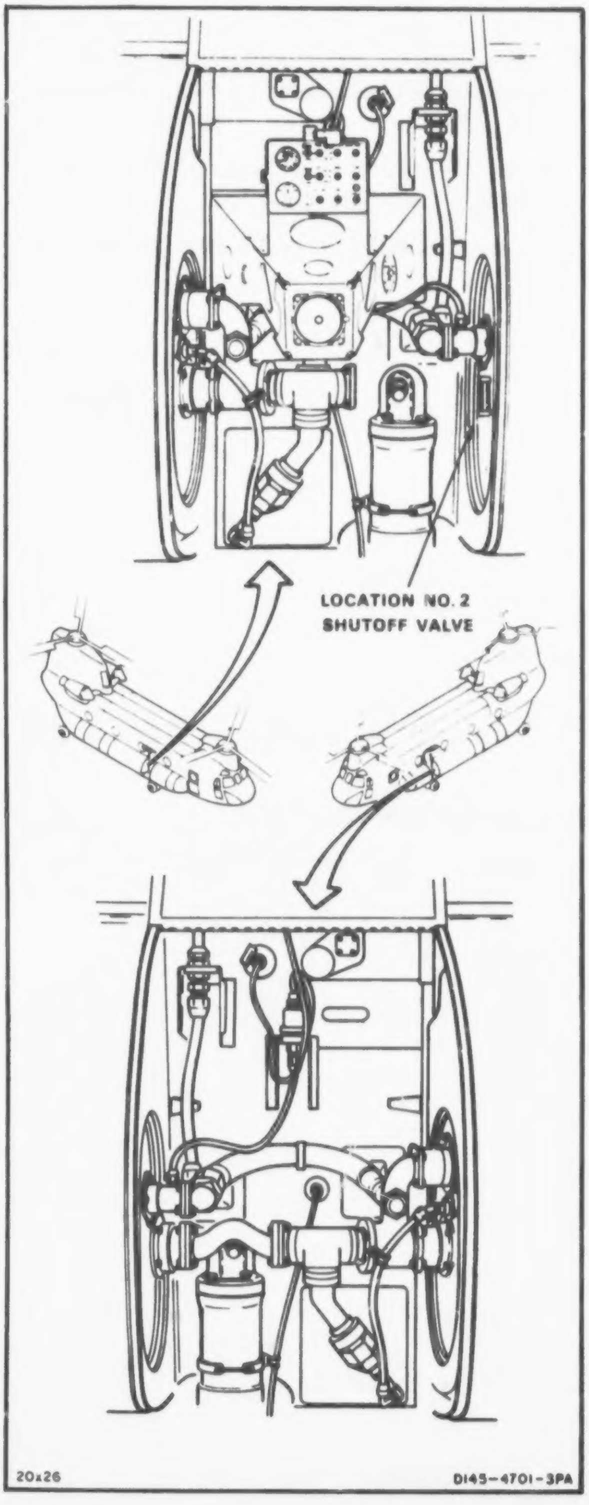
General Safety Instuctions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



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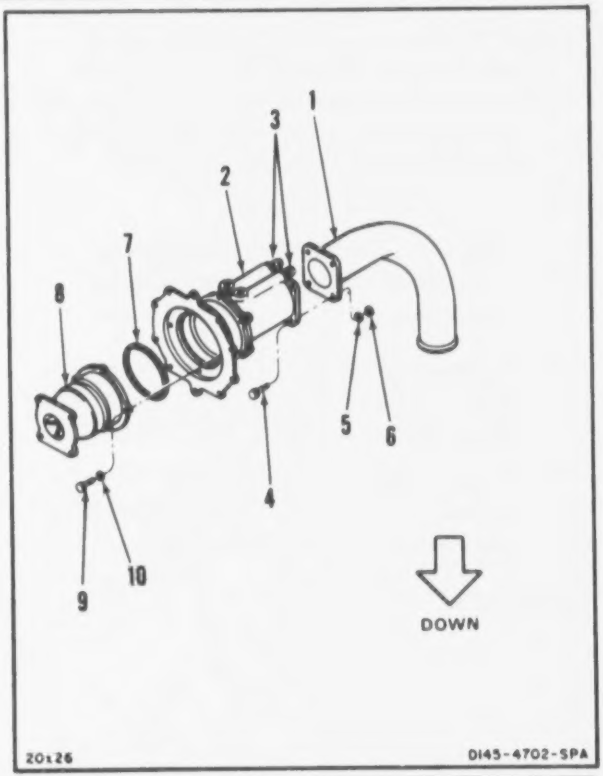
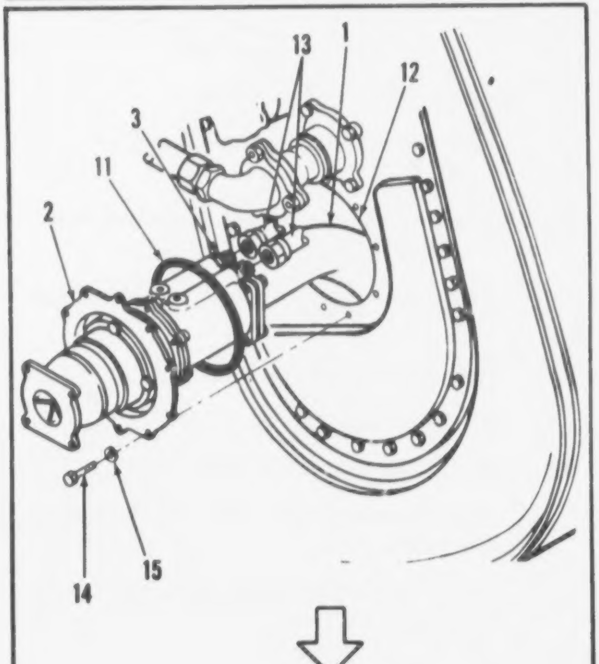
10-72 INSTALL FORWARD FUEL TANK FUEL LEVEL SHUTOFF VALVE (Continued)



NOTE

Procedure is same to install fuel level shutoff valve in No. 1 or No. 2 fuel system. Installation of No. 2 (right) shutoff valve is shown here.

1. **Position tube (1)** on shutoff valve (2). Make sure two hose connections (3) are at top, and tube points down. **Install four bolts (4),** washers (5), and nuts (6).
2. Position packing (7) on fitting (8). **Position fitting (8)** on valve (2). **Install four bolts (9)** and washers (10).



3. Install packing (11) on flange of valve (2).
4. Remove barrier material and tape from hole in tank (12). Clean tape residue from tank. Use cloth (E135) damp with dry cleaning solvent (E162). Wear gloves (E186).
5. **Maneuver fuel valve (2) through hole in tank (12)** with tube (1) pointing down. **Connect two hoses (13)** to valve connections (3).
6. **Position flange of valve (2) against tank (12)** with tube (1) pointing down. **Install 10 bolts (14)** and washers (15).

GO TO NEXT PAGE

10-72 INSTALL FORWARD FUEL TANK FUEL LEVEL SHUTOFF VALVE (Continued) 10-72

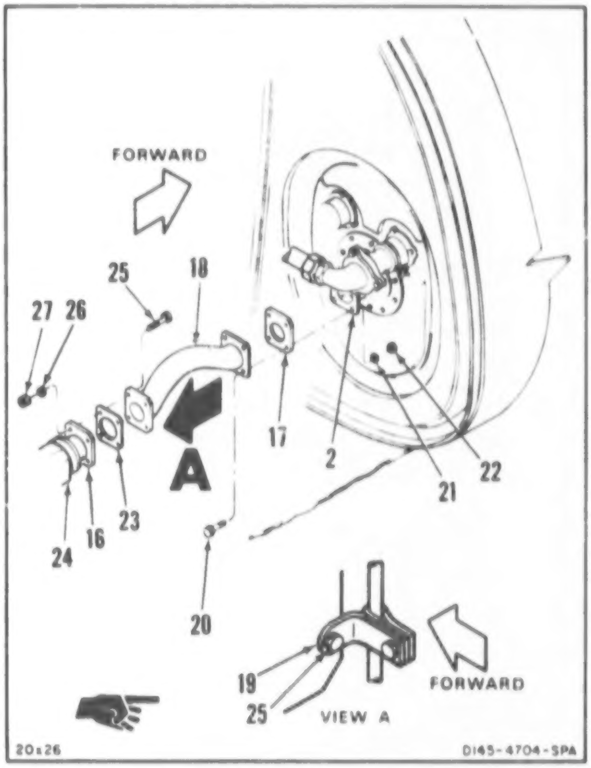
7. Remove barrier material and tape from adapter (16). Clean tape residue from adapter flange. Use dry cleaning solvent (E162) and cloths (E135). Wear gloves (E186).

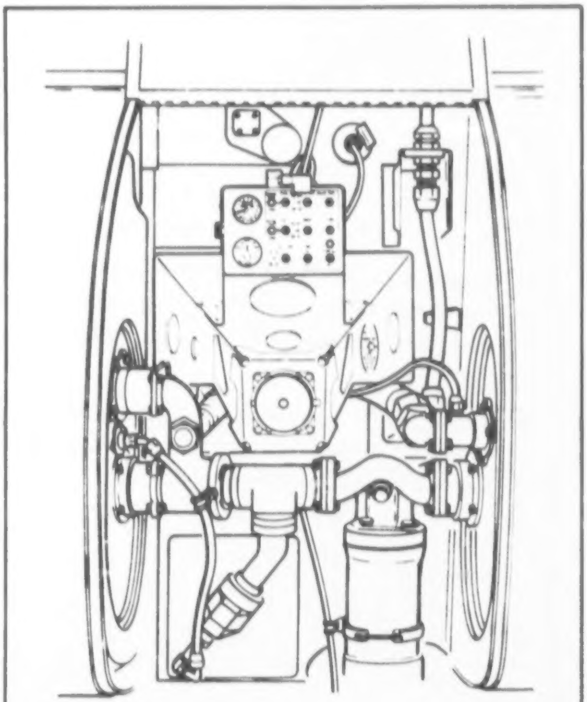
NOTE

Gasket at aft end of tube has larger center hole than gasket at forward end of tube.

8. **Position gasket (17) and tube (18)** on valve (2). **Position clip (19). Install four bolts (20),** washers (21) and nuts (22).
9. **Position gasket (23)** on tube (18). Slide adapter (24) forward. **Install four bolts (25),** washers (26), and nuts (27).

INSPECT





FOLLOW-ON MAINTENANCE:

Perform vent system flow test (Task 10-118).

Perform pressure refueling system test (Task 10-119).

Test forward tank after installation (Task 10-27).

Refuel helicopter (Task 1-51).

Check for leaks (Task 10-4).

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (TM 55-1520-240-T).

Close forward landing gear access panel (Task 2-2).

END OF TASK

10-72.1 REMOVE LOW FUEL LEVEL SENSOR 10-72.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer

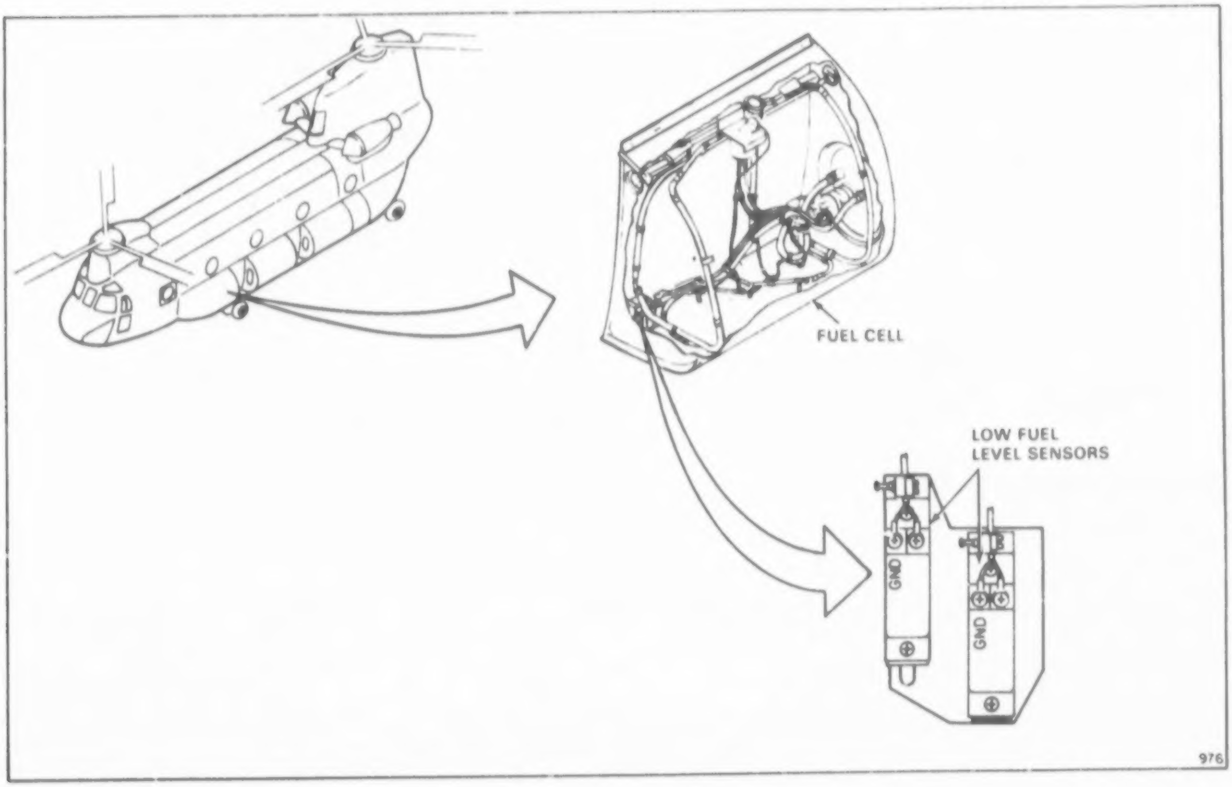
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward or Aft Tank Defueled (Task 10-34 or 10-35)
Forward Fuel Tank Lowered on Hinges (Task 10-23) and Forward Fuel Tank Forward Access Door Removed (Task 10-69), or Aft Fuel Tank Forward Access Door Removed (Task 10-79)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.



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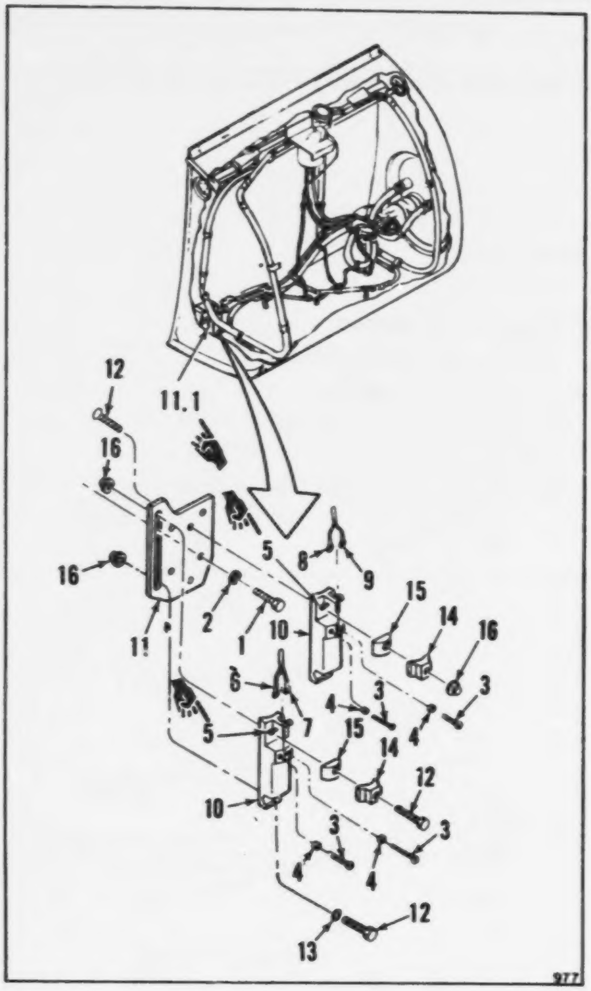
10-72.1 REMOVE LOW FUEL LEVEL SENSOR (Continued) 10-72.1

NOTE

Procedure is same to remove No. 1 or No. 2 forward or aft fuel tank low fuel level sensors. No. 1 (left) forward sensors are shown here.

1. Remove four screws (1) and washers (2).
2. Remove four screws (3) and washers (4). Loosen two screws (5). **Remove wires (6, 7, 8, and 9)** from two sensors (10). **Remove plate (11) and sensors from bracket (11.1).**
3. Remove four screws (12), washers (13 and 14), two plate supports (15), and four nuts (16). **Remove sensors (10).**


12
11.1
16
5
8
9
16
2
1
10
11
15
14
16
6
7
4
3
3
4
5
15
14
12
10
3
3
4
4
12
13
977

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-72.2 INSTALL LOW FUEL LEVEL SENSOR 10-72.2

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:

None

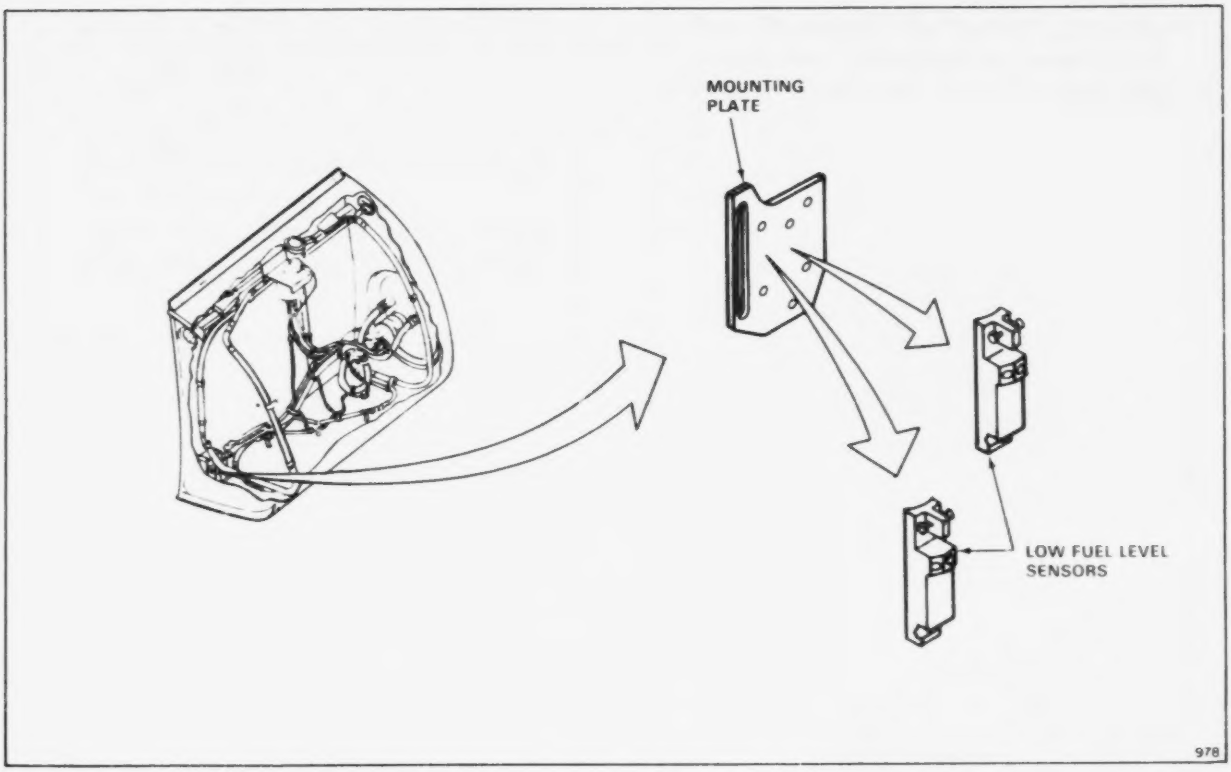
Personnel Required:

Medium Helicopter Repairer
Inspector

General Safety Instructions:

WARNING

All regulations and instructions on handling fuels shall be strictly observed.



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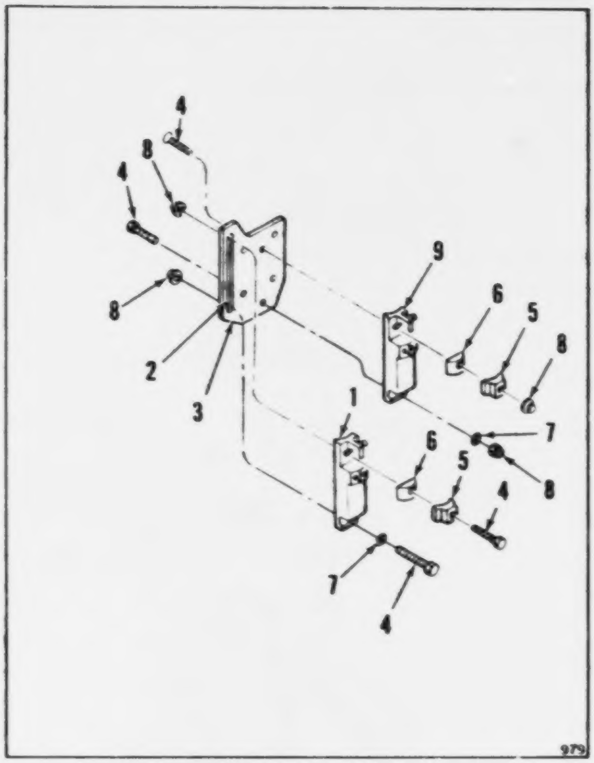
10-72.2 INSTALL LOW FUEL LEVEL SENSOR (Continued) 10-72.2

NOTE

Procedure is same to install No. 1 or No. 2 forward or aft fuel tank low fuel level sensors. No. 1 (left) forward sensors are shown here.

1. **Position sensor (1) over slot (2) on mounting plate (3). Install two screws (4)**, with heads facing out, washer (5), plate support (6), washer (7), and two nuts (8) as shown.
2. **Position lower sensor (9) on mounting plate (3). Install two screws (4)**, with heads facing in, washer (5), plate support (6), washer (7), and two nuts (8) as shown.



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10-72.2 INSTALL LOW FUEL LEVEL SENSOR (Continued) 10-72.2

3. **Connect wires (10, 11, 12, and 13) as follows:**

   a. Connect yellow wire (10) to GND on sensor (1) over slot (14). Use screw (15) and washer (16).

   b. Connect red wire (11) to unmarked side of sensor (1) over slot (14). Use screw (15) and washer (16).

   c. Connect green wire (12) to GND on lower sensor (9). Use screw (15) and washer (16).

   d. Connect black wire (13) to unmarked side of lower sensor (9). Use screw (15) and washer (16).

4. Loosen two screws (17). **Position wires (10 and 11) and (12 and 13)** in clamps (18). Tighten screws.

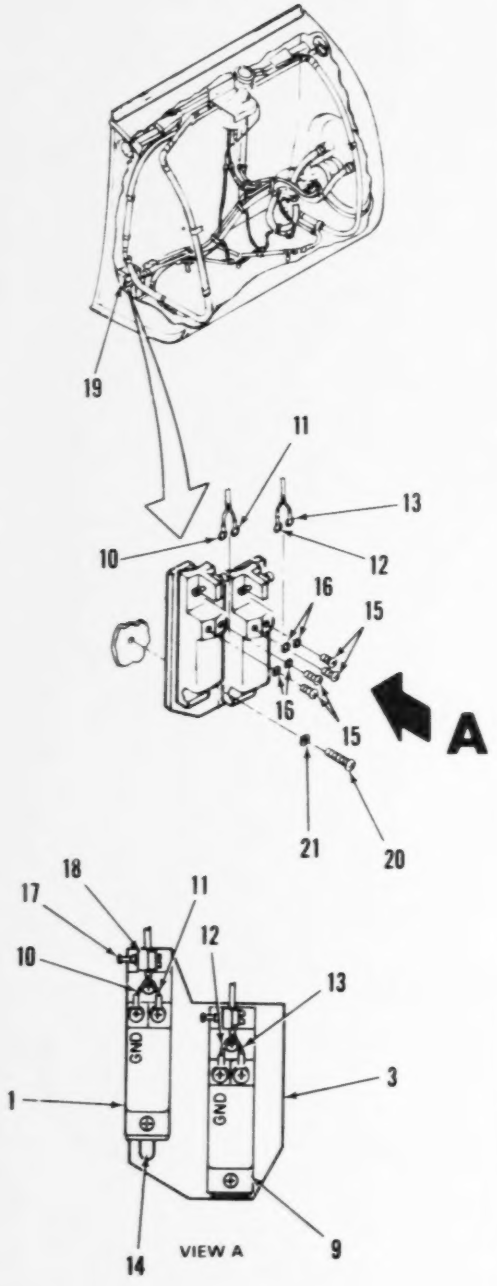
5. Position plate (3) on bracket (19). **Install plate** with four screws (20) and washers (21).

INSPECT

FOLLOW-ON MAINTENANCE:

Install forward fuel tank forward access door (Task 10-70) and raise and install forward fuel tank (Task 10-26), or install aft fuel tank forward access door (Task 10-80).

Refuel helicopter (Task 1-51).



END OF TASK

10-73 REMOVE FORWARD FUEL TANK VENT VALVE 10-73

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Barrier Material (E80)
Tape (E388)

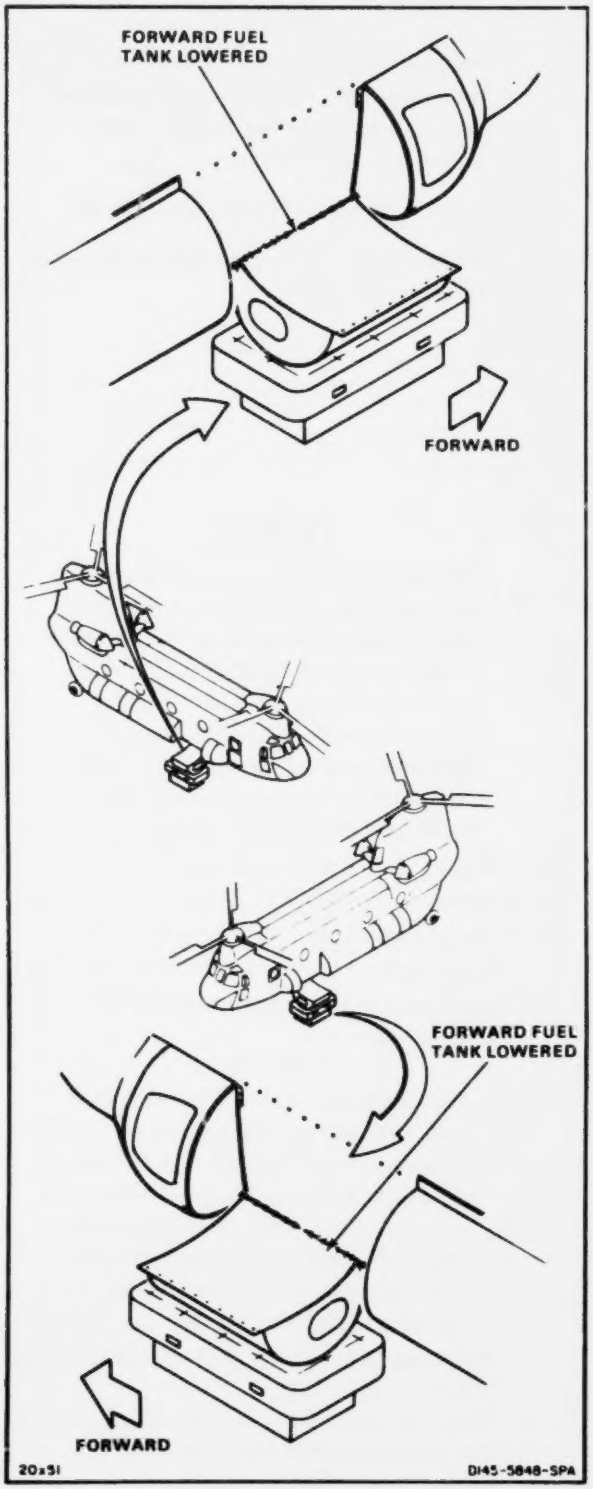
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Helicopter Defueled (Task 10-34 or 10-35)
Forward Landing Gear Access Panel Removed (Task 2-178 or 2-180)
Fuel Tank Lowered On Hinges (Task 10-23)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD FUEL TANK LOWERED
FORWARD
FORWARD FUEL TANK LOWERED
FORWARD
20x51
D145-5848-SPA

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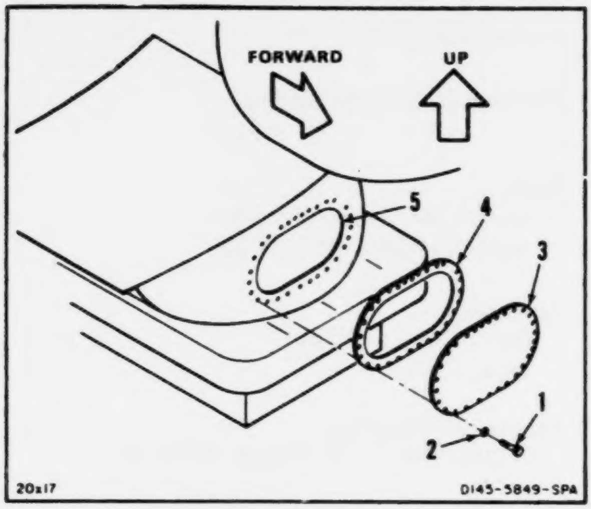
10-73 REMOVE FORWARD FUEL TANK VENT VALVE (Continued) 10-73

NOTE

Procedure is same to remove vent valve from No. 1 or No. 2 forward fuel tank. Removal of No. 2 (right) vent valve is shown here.

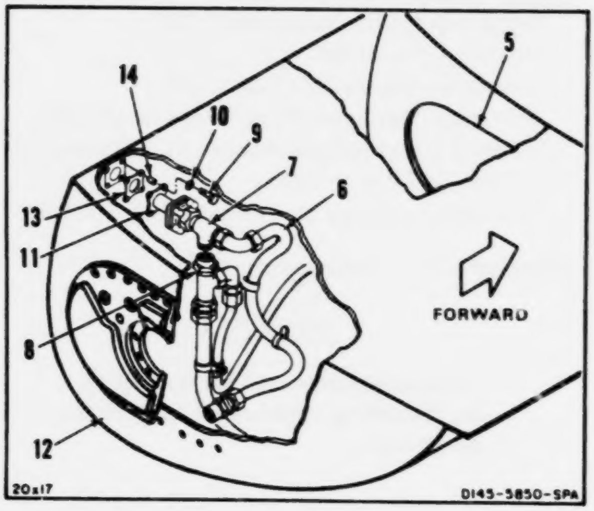
1. **Remove 30 bolts (1)** and washers (2).
2. **Remove door (3)** and gasket (4) from forward access hole (5).



CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

3. Working through forward access hole (5), disconnect hose (6) from valve (7). Plug hose.
4. **Disconnect tube (8)** from valve (7).
5. **Remove four bolts (9)** and washers (10).
6. **Remove valve (7) and adapter (11)** from tank (12) as a unit.



NOTE

Four different types of forward fuel cells are used on the helicopter. Each is interchangeable, but has a different assembly between valve adapter and cell. Goodyear cells have four bushings. FPT cells have an adapter plate and uniroyal cells have nothing between adapter and cell.

7. **Remove shim plate (13)** or four bushings (14) from tank (12).
8. Cover access hole (14) in tank (12). Use barrier material (E80) and tape (E388).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-74 INSTALL FORWARD FUEL TANK VENT VALVE 10-74

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Dry Cleaning Solvent (E162)
Cloths (E135)
Gloves (E186)

Parts:
Gasket

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P
Task 10-117

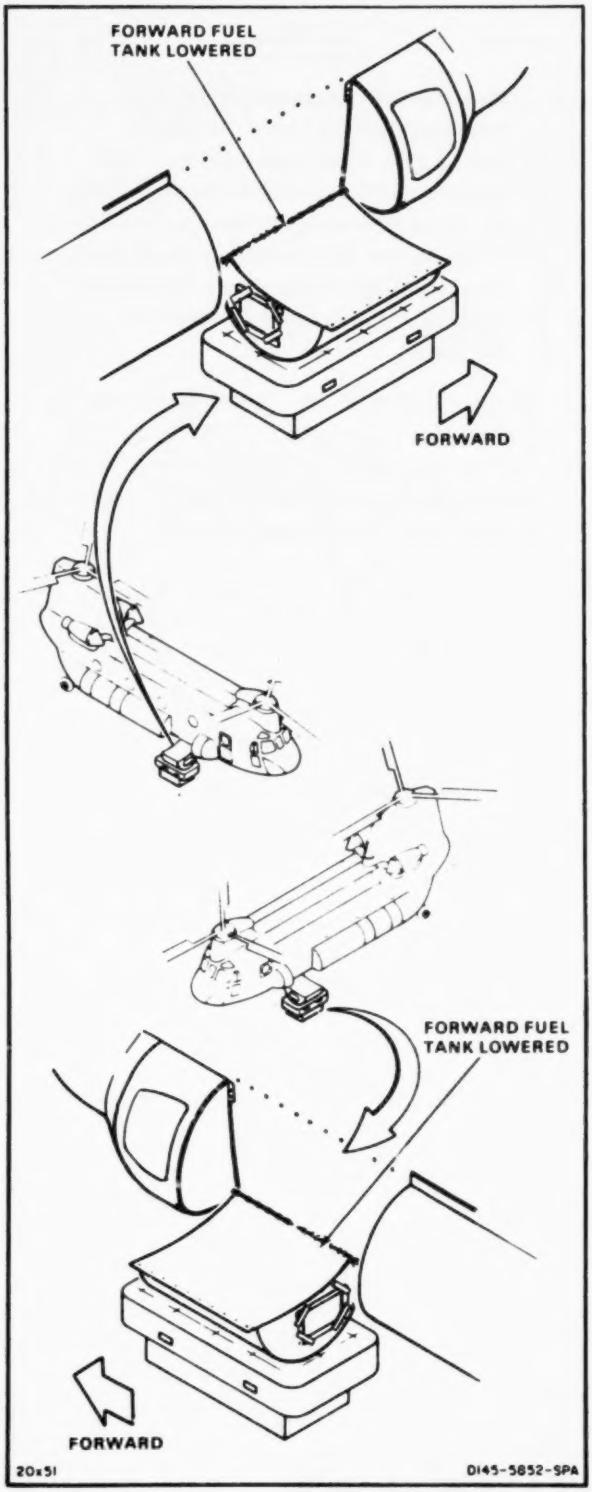
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

NOTE

Procedure is same to install vent valve on No. 1 or No. 2 forward fuel tank. Installation of No. 2 (right) vent valve is shown here.


FORWARD FUEL TANK LOWERED
FORWARD
FORWARD FUEL TANK LOWERED
FORWARD
20x51
D145-5852-SPA

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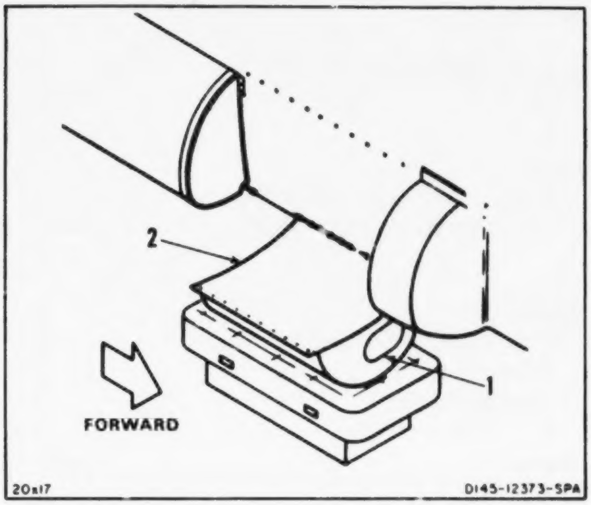
10-74 INSTALL FORWARD FUEL TANK VENT VALVE (Continued) 10-74

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Remove barrier material and tape covering forward hole (1) in tank (2). Remove tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186)



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10-74 INSTALL FORWARD FUEL TANK VENT VALVE (Continued) 10-74

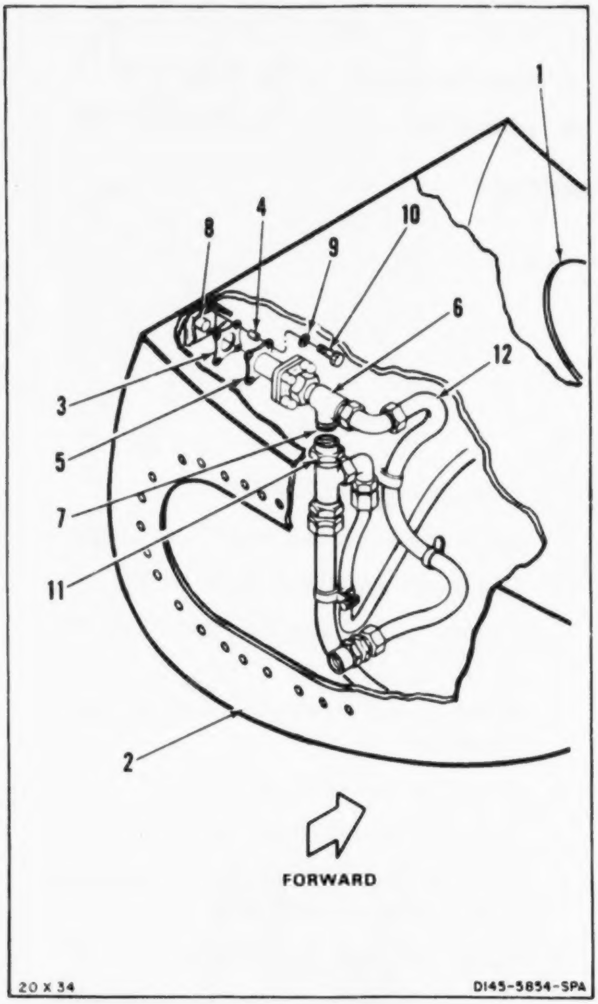
CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

NOTE

Four different types of forward fuel cells are used on the helicopter. Each is interchangeable, but has a different assembly between valve adapter and cell. Goodyear cells have four bushings, FPT cells have an adapter plate and uniroyal cells have nothing between adapter and cell.

2. Working through forward access hole (1), **position shim plate (3), or four bushings (4) as required, adapter (5) and valve (6) with port (7) down, over drain valve (8), on floor of tank (2).**
3. **Install four** washers (9) and **bolts (10).**
4. **Connect tube (11)** to port (7) of valve (6).
5. Remove plug from hose (12). **Connect hose** to valve (6).



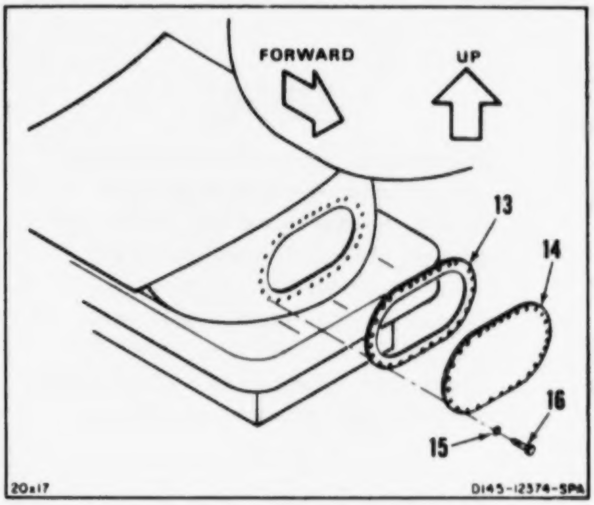
INSPECT

GO TO NEXT PAGE

10-74 INSTALL FORWARD FUEL TANK VENT VALVE (Continued) 10-74

6. Perform vent system pressure test (Task 10-117).
7. **Position** gasket (13) and **door (14).**
8. **Install 30** washers (15) and **bolts (16).**

INSPECT


FORWARD
UP
13
14
16
15
20x17
D145-12374-SPA

FOLLOW-ON MAINTENANCE:

Raise and install fuel tank (Task 10-26).

Test forward fuel tank (Task 10-27).

Perform vent system flow test (Task 10-118).

Perform test of pressure refueling system (Task 10-119).

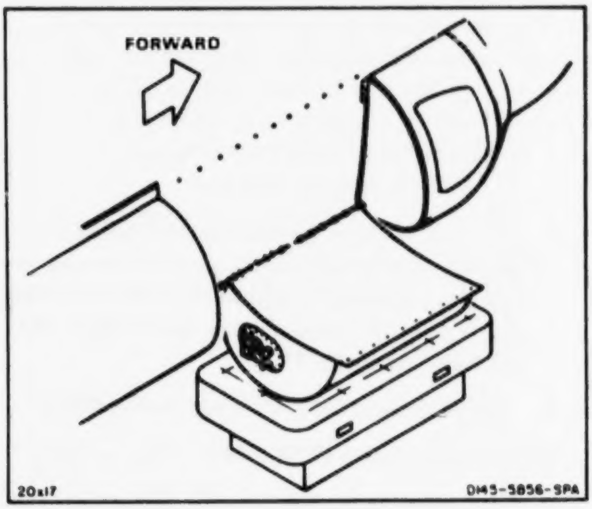
Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-4).

Install forward landing gear access panel (Task 2-181 or 2-179).


FORWARD
20x17
D145-5856-SPA

END OF TASK

10-75 REMOVE FORWARD FUEL TANK BOOST PUMP CHECK VALVE 10-75

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Wrench, Open End, 1 1/2-Inch

Materials:
Cloths (E135)

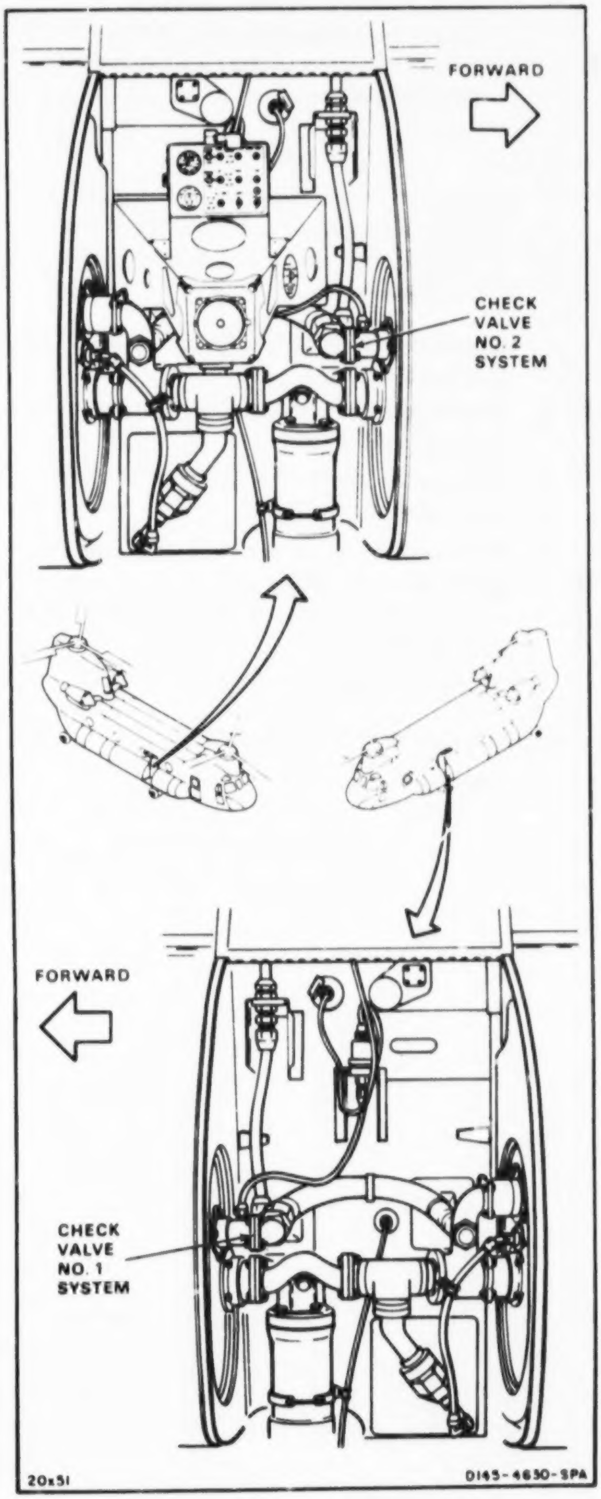
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Landing Gear Access Door Opened (Task 2-2)
All Tanks on Affected Side of Helicopter Defueled and Both Crossover Valves Closed (Task 10-34 or 10-35)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
CHECK VALVE NO. 2 SYSTEM
FORWARD
CHECK VALVE NO. 1 SYSTEM
20x51
D145-4630-SPA

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10-75 REMOVE FORWARD FUEL TANK BOOST PUMP CHECK VALVE (Continued) 10-75

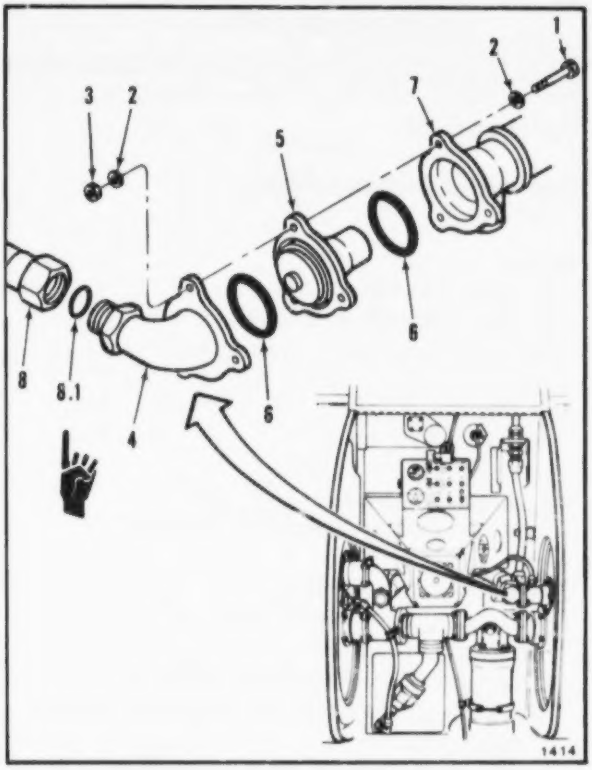
CAUTION

Do not allow fitting to turn when installing elbow. Otherwise, fitting can fail and cause fuel blockage.

NOTE

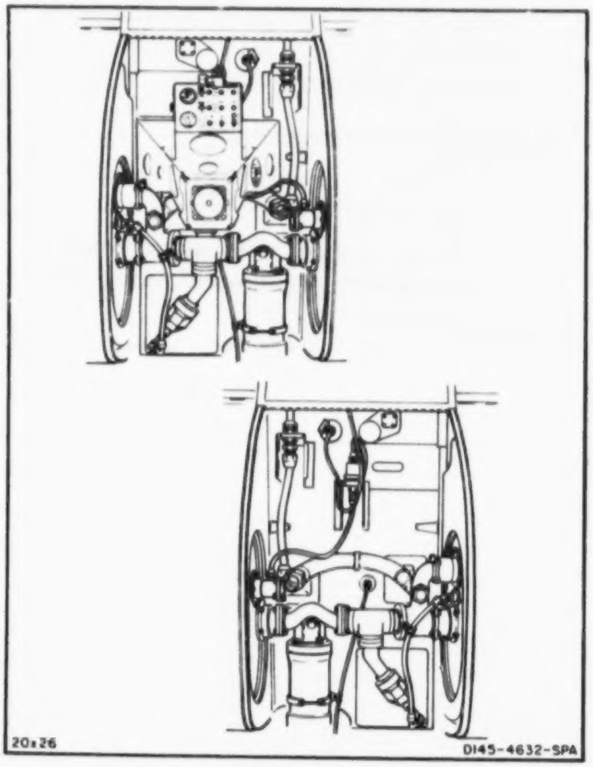
Procedure is same for removing No. 1 or No. 2 forward fuel tank boost pump check valve. No. 2 check valve is shown here.

1. **Remove three bolts (1),** six washers (2), and three nuts (3).
2. **Remove check valve (5).** Use container to catch spilled fuel.
3. Remove two packings (6).
4. Plug elbow (4) and fitting (7).
5. If elbow (4) will be replaced, **disconnect hose (8)** from elbow (4). Remove conical seal (8.1) from hose fitting. Plug hose and cap elbow.
6. Clean up spilled fuel. Use cloths (E135).



FOLLOW-ON MAINTENANCE:

None



END OF TASK

10-76 INSTALL FORWARD FUEL TANK BOOST PUMP CHECK VALVE 10-76

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Parts:
Packings

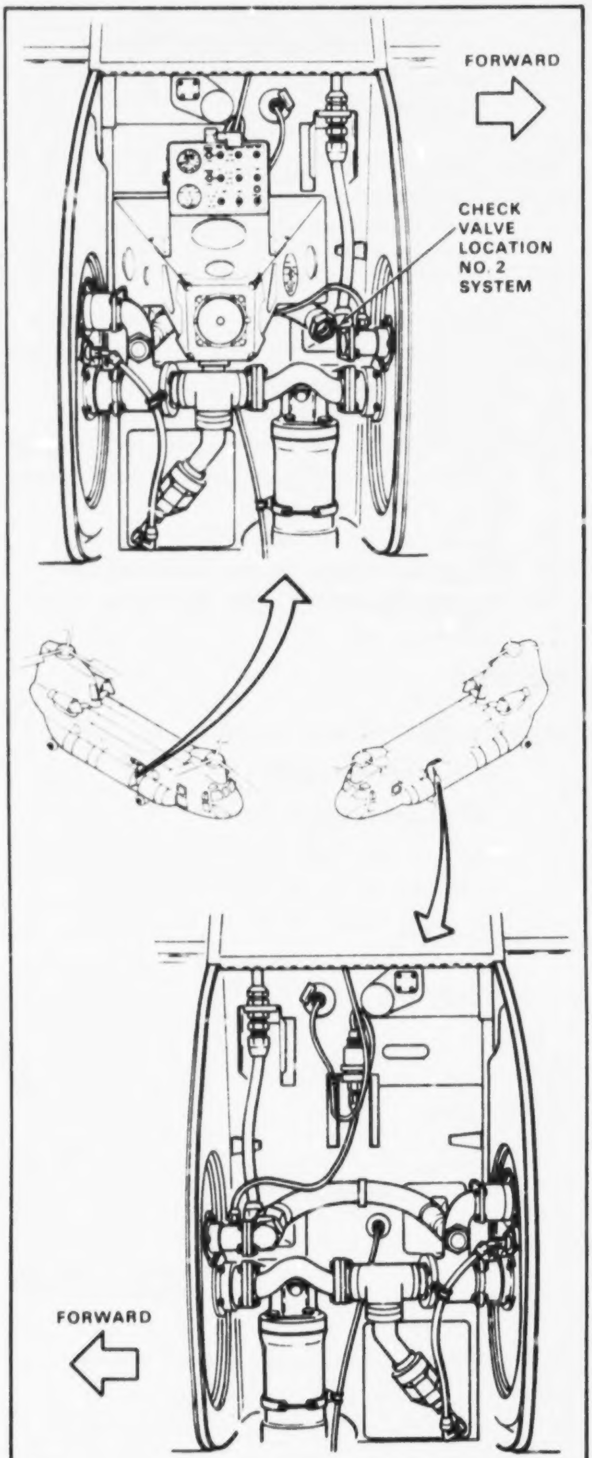
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
CHECK VALVE LOCATION NO. 2 SYSTEM
FORWARD
20x51
0145-4633-SPA

GO TO NEXT PAGE

10-76 INSTALL FORWARD FUEL TANK BOOST PUMP CHECK VALVE (Continued) 10-76

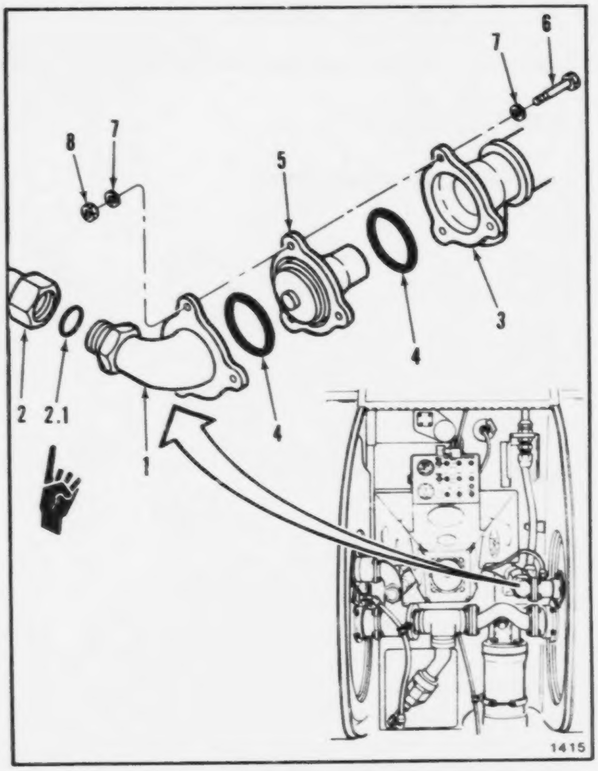
CAUTION

Do not allow fitting to turn when installing elbow. Otherwise, fitting can fail and cause fuel blockage.

NOTE

Procedure is same to install No. 1 or No. 2 forward fuel tank boost pump check valves. No. 2 check valve is shown here.

1. If elbow (1) is removed, remove cap from elbow and plug from hose (2). Install conical seal (2.1) in hose fitting.
2. **Connect hose (2)** to elbow (1).
3. Remove plugs from elbow (1) and fitting (3).
4. Install two packings (4), one on each flange face of check valve (5).
5. **Position check valve (5)** in fitting (3).
6. **Position elbow (1)** on check valve (5).
7. **Install three bolts (6),** six washers (7), and three nuts (8).



INSPECT

FOLLOW-ON MAINTENANCE:

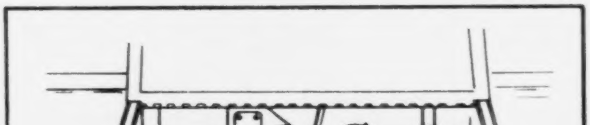
Refuel aircraft (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (TM 55-1520-240-T).

Check for leaks (Task 10-4).

Close forward landing gear access door (Task 2-2).



END OF TASK

10-77 REMOVE AFT TANK FUEL LINES AND ELECTRICAL WIRING 10-77

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Barrier Material (E80)
Tape (E388)
Paper Tags (E264)

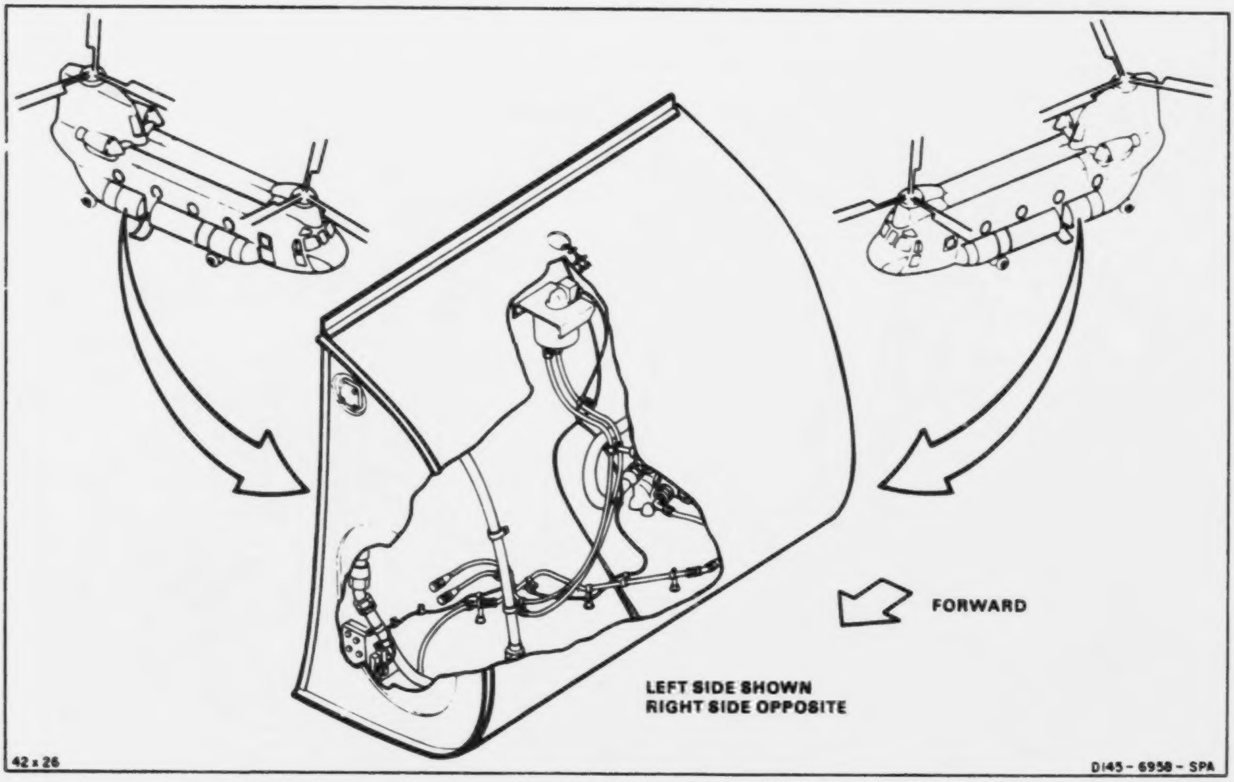
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power OFF
Helicopter Grounded (Task 1-29)
Affected Tank Defueled (Task 10-34 or 10-35)
Fuel Level Transmitter Removed (Task 8-81)
Aft Fuel Tank Boost Pump Removed (Task 10-79)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuel shall be strictly observed.



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10-77 REMOVE AFT TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-77

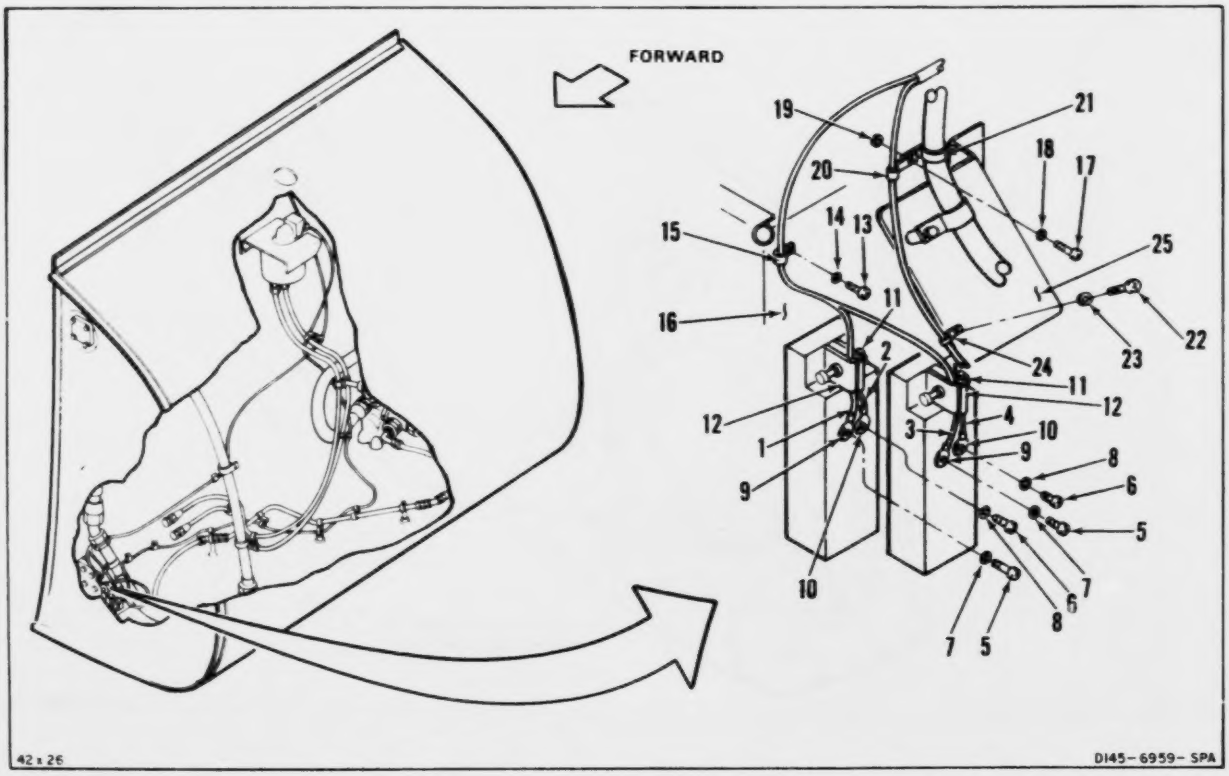
NOTE

Procedure is same to remove fuel lines and electrical wiring from No. 1 or No. 2 aft fuel tank. No. 1 (left) aft tank removal is shown here.

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

1. Tag four wires (1, 2, 3 and 4). **Remove four screws (5 and 6)** and washers (7 and 8). **Remove four wire terminals (9 and 10). Install four screws** and washers.
2. Loosen two screws (11). **Remove four wires (1, 2, 3, and 4) from two clamps (12).**
3. **Remove** screw (13), washer (14), and **electrical wire clamp (15)** from pump mounting bracket (16).
4. Remove screw (17), washer (18), and nut (19) from electrical wire clamp (20) to tube clamp (21). **Disconnect clamps.**
5. **Remove** screw (22), washer (23), and **electrical wire clamp (24)** from tube mounting bracket (25).



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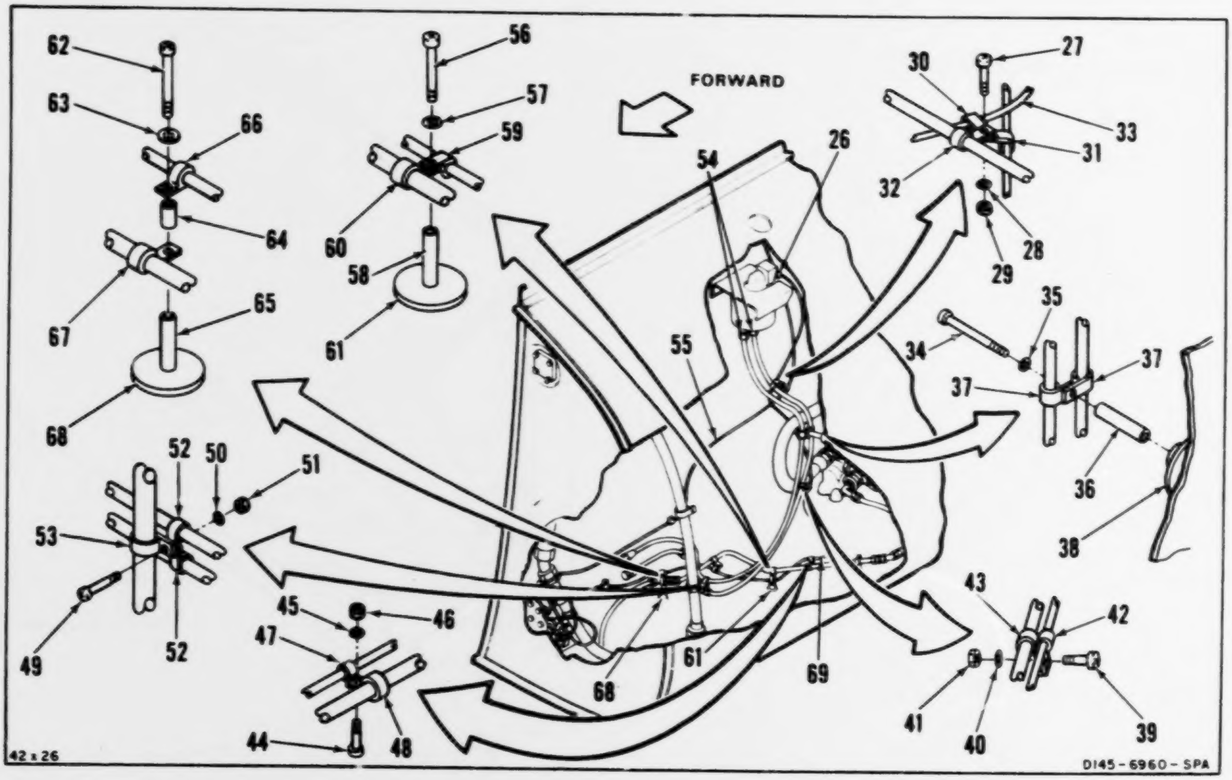
10-77 REMOVE AFT TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-77

6. **Disconnect electrical connection (26).**
7. Remove screw (27), washer (28), and nut (29). **Disconnect two electrical wire clamps (30 and 31)** from hose clamp (32). Tag and **remove electrical wire (33).**
8. Remove screw (34), washer (35) and spacer (36). **Disconnect two hose clamps (37)** from fuel cell mounting plate (38).
9. Remove screw (39), washer (40), and nut (41). **Disconnect wire clamp (42) from hose clamp (43).**
10. Remove screw (44), washer (45) and nut (46). **Disconnect wire clamp (47)** from tube clamp (48).
11. Remove screw (49), washer (50), and nut (51). **Disconnect two hose clamps (52)** from tube clamp (53).
12. Disconnect two hose connections (54). Tag and **remove hoses (55).**
13. Remove screw (56), washer (57), and spacer (58). **Disconnect wire clamp (59) and tube clamp (60)** from fuel cell mounting plate (61).
14. Remove screw (62), washer (63), and two spacers (64 and 65). **Disconnect cable clamp (66) and tube clamp (67)** from fuel cell mounting plate (68).
15. Tag and **remove wires (69).**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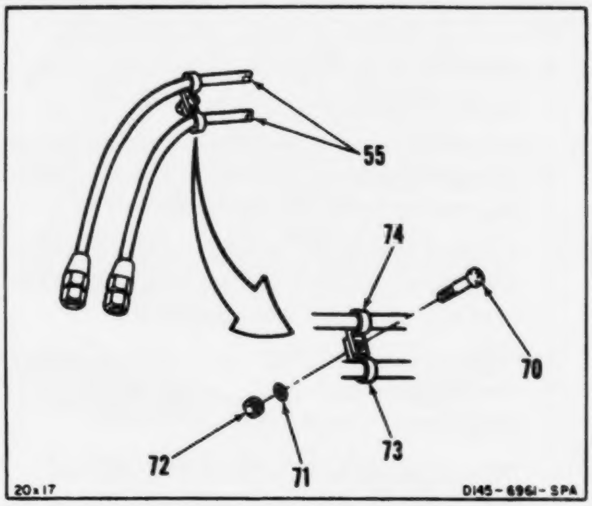
10-77 REMOVE AFT TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-77

16. Remove screw (70), washer (71), and nut (72). Disconnect two hose clamps (73 and 74). **Separate two hoses (55).**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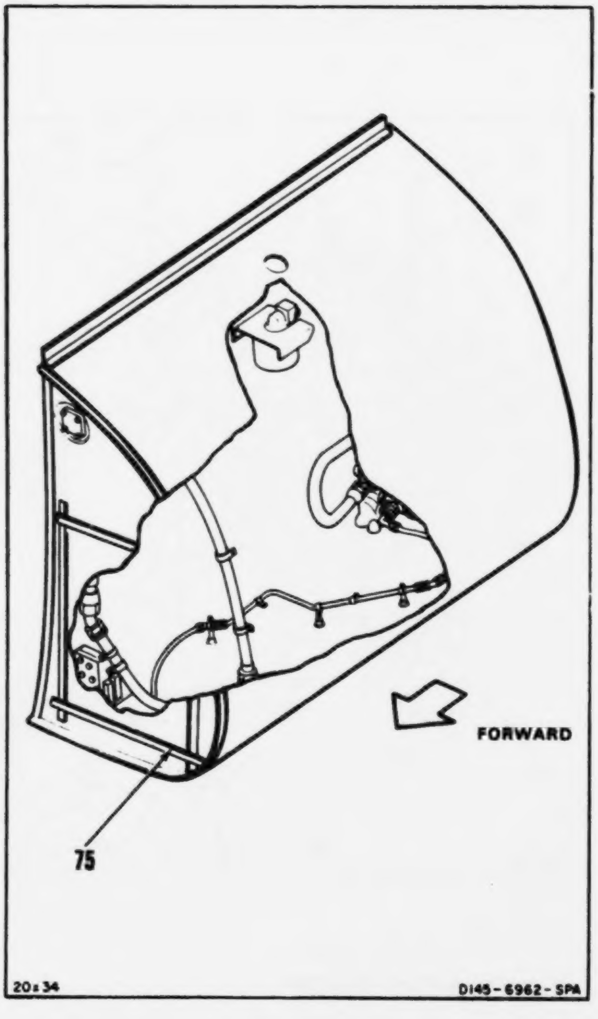
D145-6961-SPA

17. **Cover access hole in tank (75).** Use barrier material (E80) and tape (E388).

FOLLOW-ON MAINTENANCE:

None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END OF TASK

10-78 INSTALL AFT TANK FUEL LINES AND ELECTRICAL WIRING 10-78

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 700 - 1600 Inch-Pounds

Materials:
Dry Cleaning Solvent (E162)
Gloves (E186)
Cloths (E135)
Lockwire (E233)
Tape (E388)

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM55-1520-240-23P

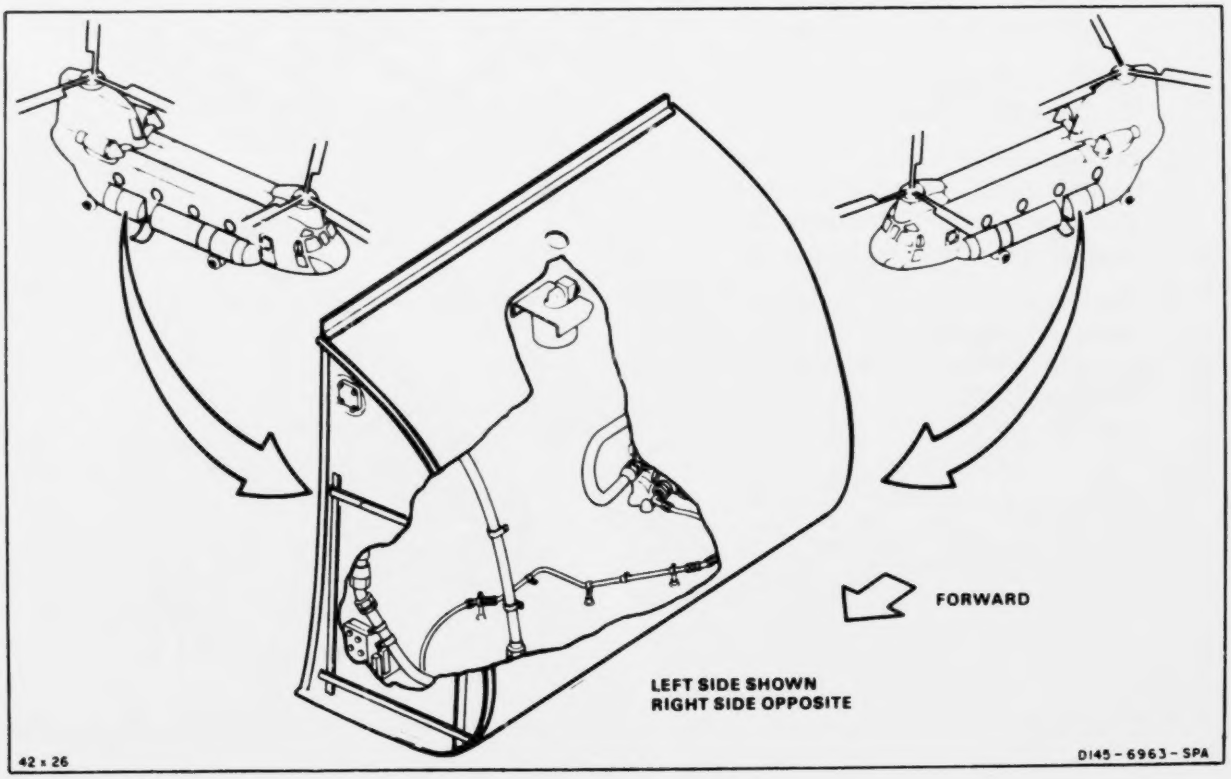
General Safety Instructions:

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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10-78 INSTALL AFT TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-78

NOTE

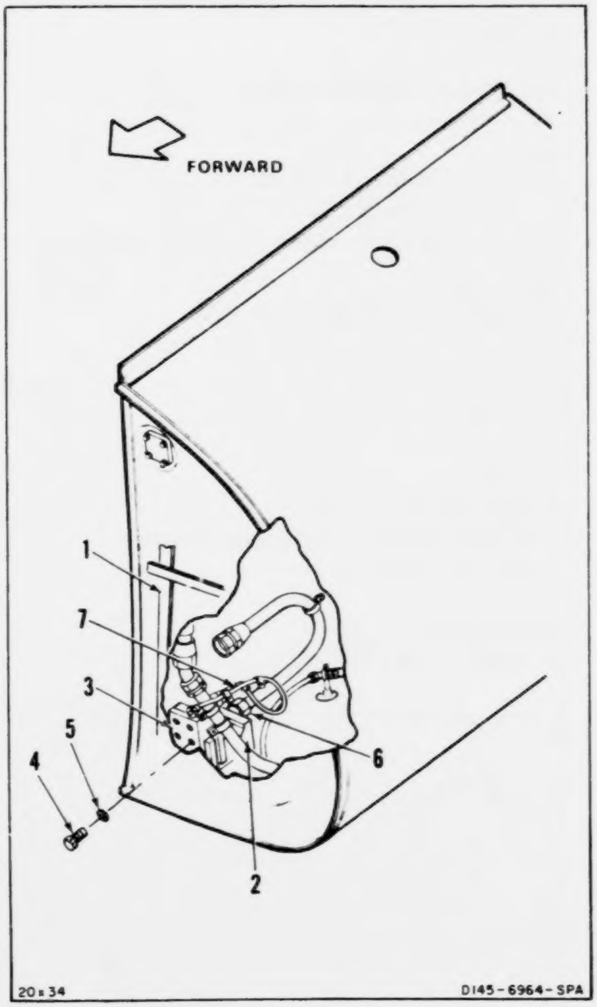
Procedure is same to install fuel lines and electrical wiring in No. 1 or No. 2 aft fuel tank. No. 1 (left) tank installation is shown here.

1. Remove barrier material and tape from access hole in tank (1). Clean tape residue from tank. Use dry cleaning solvent (E162) and clean cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

2. **Position boost pump (2)** on pump bracket (3). **Install four bolts (4)** and washers (5).
3. Remove plug from hose (6) and cap from boost pump (2). Position hose inside tank. **Connect hose** to boost pump. **Torque hose connector to 1075 inch-pounds.**
4. Position wire harness (7) inside tank. **Connect wire harness** to boost pump (2). Lockwire connector to boost pump. Use lockwire (E233).



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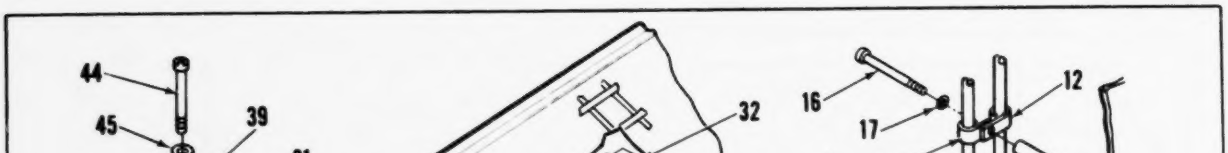
10-78 INSTALL AFT TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-78

5. Position two hoses (8 and 9) inside fuel tank. **Connect hose connectors (10 and 11).**
6. **Position two hoses (8 and 9), two hose clamps (12 and 13), and spacer (14)** at fuel cell mounting plate (15). **Install screw (16)** and washer (17).
7. **Position two hoses (8 and 9), two hose clamps (18 and 19), and tube clamp (20). Install screw (21),** washer (22), and nut (23).
8. Position hose connectors (24 and 25) at approximate final installed location. **Position hose clamps (26 and 27). Install screw (28),** washer (29) and nut (30).
9. Position electrical wiring (31) inside fuel tank. **Connect electrical connector (32).**
10. **Position wiring (31), wire clamp (33), tube clamp (34) and spacer (35)** at fuel cell mounting plate (36). **Install screw (37)** and washer (38).
11. **Position electrical wiring (31), wire clamp (39), hose clamp (40) and two spacers (41 and 42)** at fuel cell mounting plate (43). **Install screw (44)** and washer (45).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10-78 INSTALL AFT TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-78

12. Remove barrier material and tape from hole (46) in tank. Clean tape residue from tank. Use dry cleaning solvent (E162) and clean cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).

13. **Position wiring harness (47) inside fuel tank.** Push two terminal ends (48 and 49) of harness through hole (46) and tape terminal ends to outside of tank (1). Use tape (E388).

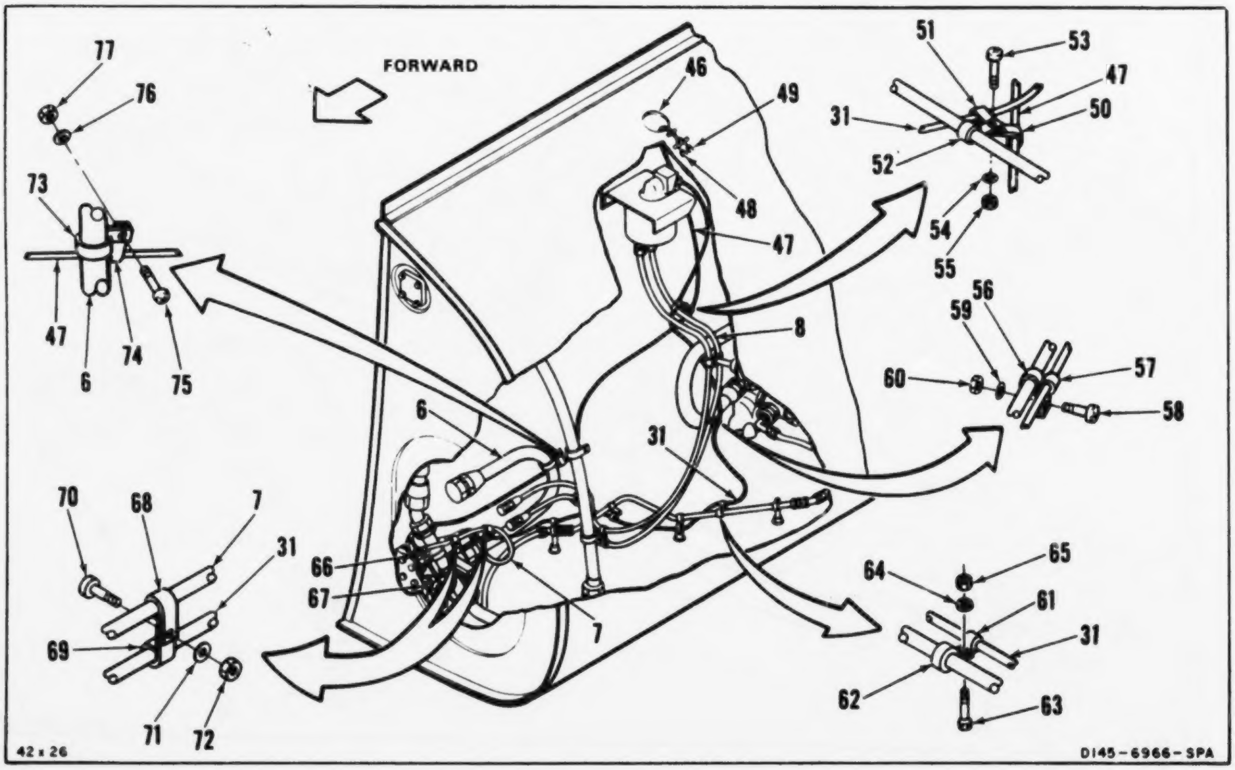
14. **Position wiring harness (47), wiring (31), two electrical wiring clamps (50 and 51), and hose clamp (52). Install screw (53),** washer (54) and nut (55).

15. **Position hose (8), wiring (31), hose clamp (56) and electrical wire clamp (57). Install screw (58),** washer (59), and nut (60).

16. **Position wiring (31), wire clamp (61) and tube clamp (62). Install screw (63)** washer (64) and nut (65).

17. Position wire harness connectors (66 and 67) at approximate final installed location. **Position wire harness (7), electrical wiring (31), two harness clamps (68) and two electrical wiring clamps (69). Install two screws (70),** washers (71) and nuts (72).

18. Position hose (6) and wiring (47) at approximate final installed location. **Position hose clamp (73) and harness clamp (74). Install screw (75),** washer (76) and nut (77).



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10-78 INSTALL AFT TANK FUEL LINES AND ELECTRICAL WIRING (Continued) 10-78

19. **Position electrical wiring (47) and clamp (78) on tube mounting bracket (79). Install screw (80)** and washer (81).

20. **Position electrical wiring (47), wire clamp (82) on tube clamp (83). Install screw (84),** washer (85) and nut (86).

21. Remove four screws (87 and 88) and four washers (89 and 90). Remove tags from wires (91, 92, 93, and 94). **Position electrical wire terminals (95 and 96). Install four screws** and washers.

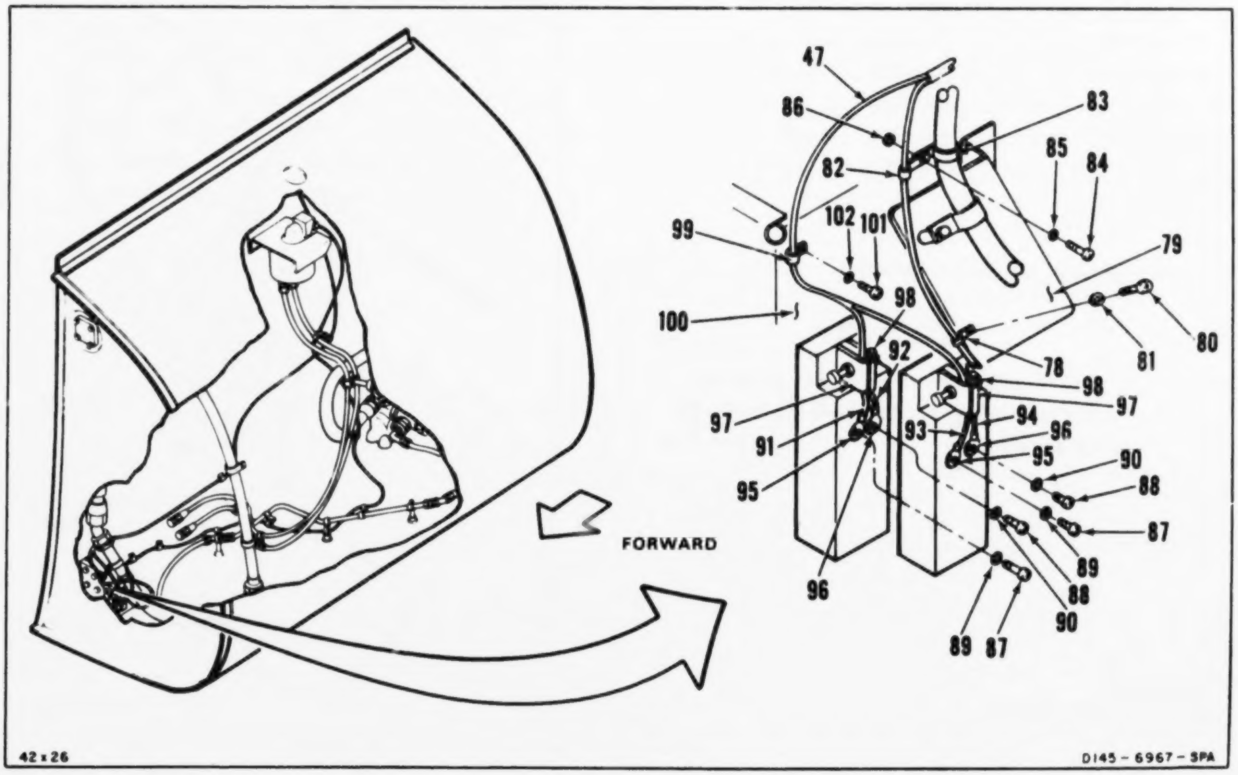
22. **Position four wires (91, 92, 93, and 94) in two clamps (97). Tighten two screws (98).**

23. **Position electrical wire (47) and wire clamp (99)** on pump mounting bracket (100). **Install screw (101)** and washer (102).

INSPECT

FOLLOW-ON MAINTENANCE:

Install fuel level transmitter (Task 8-82).
Perform vent system pressure test (Task 10-117).
Install access door (Task 10-80).
Install fuel level shut-off valve (Task 10-82).
Test aft fuel tank (Task 10-32).
Perform vent system flow test (Task 10-118) on affected tank.
Perform test of pressure refueling system (Task 10-119) and fuel feed system (Task 10-120).
Refuel helicopter (Task 1-51).
Bleed fuel system (Task 10-121).
Perform operational check of appropriate fuel system (TM 55-1520-240-T).
Inspect for leaks (Task 10-4).
Close and lock aft intertank pod panel (Task 2-188).



END OF TASK

10-79 REMOVE AFT FUEL TANK BOOST PUMP 10-79

INITIAL SETUP

Applicable Configurations:
All

Tools:
- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Wrench, Open End, 1 1/8-Inch
- Wrench, Open End, 1 1/2-Inch

Materials:
- Tape (E388)
- Cloths (E135)
- Barrier Material (E80)
- Paper Tags (E264)

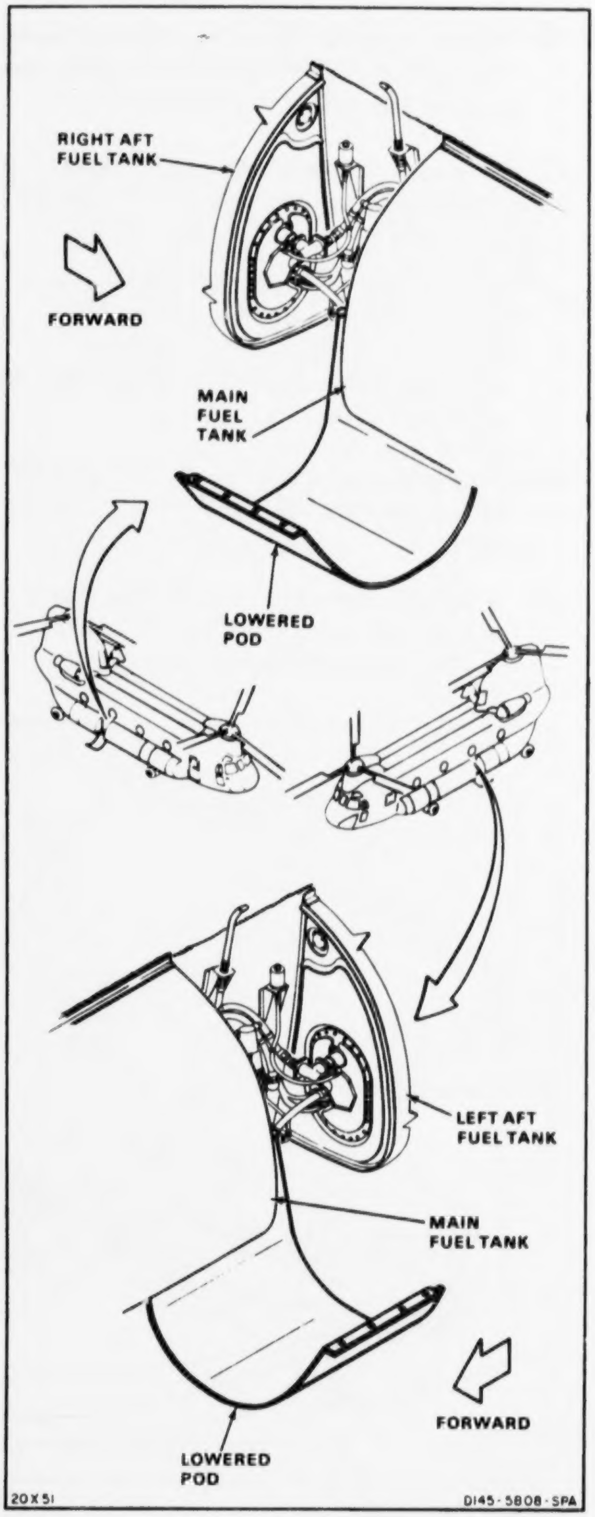
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Helicopter Grounded (Task 1-29)
- Aft Intertank Pod Lowered (Task 2-185)
- Aft Fuel Tank Defueled (Task 10-34 or 10-35)
- Aft Fuel Tank Purged (Task 10-2)
- Aft Auxiliary Fuel Tank Fuel Level Shut-Off Valve Removed (Task 10-81)
- Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


RIGHT AFT FUEL TANK
FORWARD
MAIN FUEL TANK
LOWERED POD
LEFT AFT FUEL TANK
MAIN FUEL TANK
FORWARD
LOWERED POD
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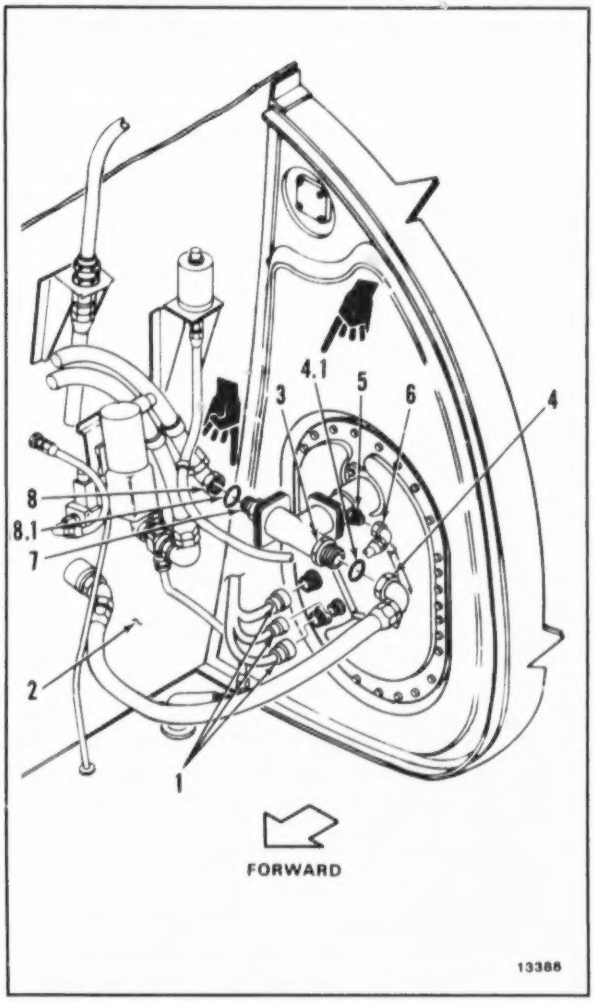
D145-5808-SPA

GO TO NEXT PAGE

10-79 REMOVE AFT FUEL TANK BOOST PUMP (Continued) 10-79

NOTE

Procedure is same to remove boost pump from No. 1 or No. 2 fuel system aft auxiliary fuel tank. Removal of No. 1 (left) boost pump is shown here.



REMOVE FORWARD ACCESS DOOR

1. Tag three connectors (1). Remove lockwire and **disconnect three connectors.** Tape wires and connectors to fuselage (2) for stowage. Use tape (E388).

CAUTION

When disconnecting fuel hoses from tank access door, do not allow elbows or fittings to turn. Otherwise, fittings can fail and cause fuel blockage.

2. Hold fitting (3) with wrench. **Disconnect hose (4).** Catch spilled fuel. Use grounded container. Remove conical seal (4.1) from hose fitting. Plug hose and cap fitting.
3. Hold adapter (5) with wrench. **Disconnect hose (6).** Catch spilled fuel. Use grounded container. Plug hose and cap adapter.
4. Hold fitting (7) with wrench. **Disconnect hose (8).** Catch spilled fuel. Use grounded container. Remove conical seal (8.1) from hose fitting. Plug hose and cap fitting.

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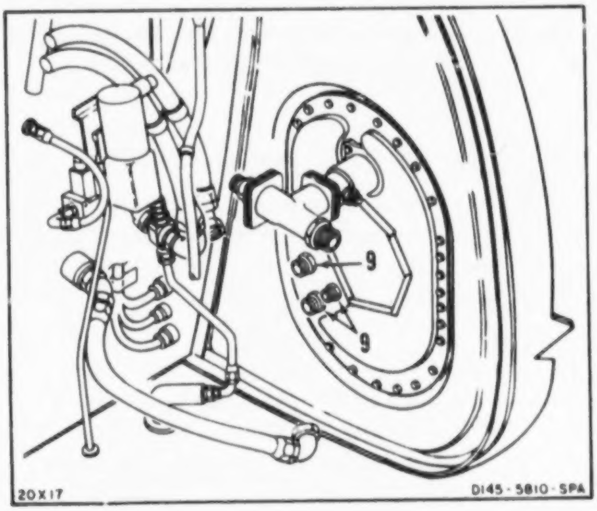
10-79 REMOVE AFT FUEL TANK BOOST PUMP (Continued) 10-79

5. Remove lockwire and **loosen three** locknuts (9).

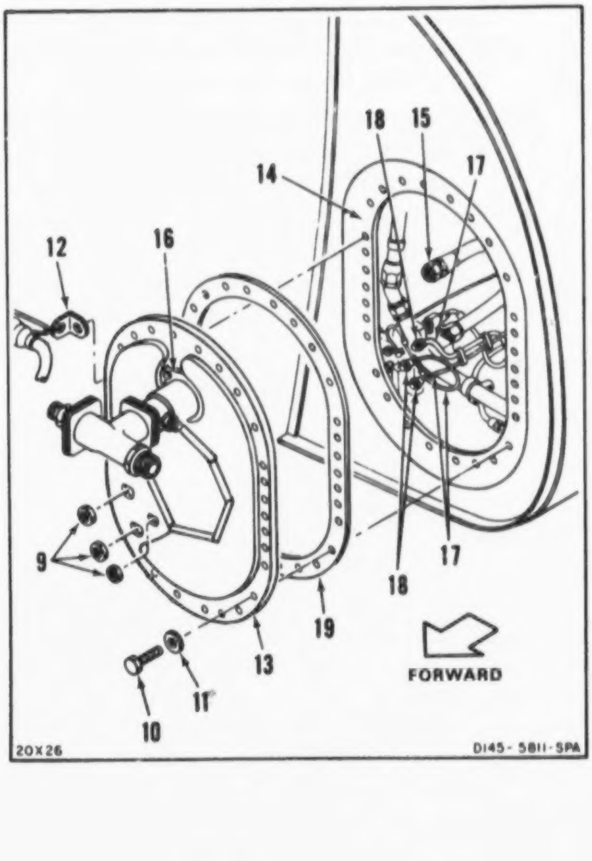


6. **Remove 30 bolts (10),** washers (11), and lanyard cable assembly (12). Clean up spilled fuel. Use cloths (E135).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

7. Withdraw access door (13) from tank (14) for access to hose (15). **Disconnect hose (15)** from adapter (16) on inside of access door. Plug hose and cap adapter.
8. Tag three electrical cables (17). Remove three locknuts (9). **Remove three receptacles (18)** from access door (13).
9. Remove access door (13) and gasket (19).



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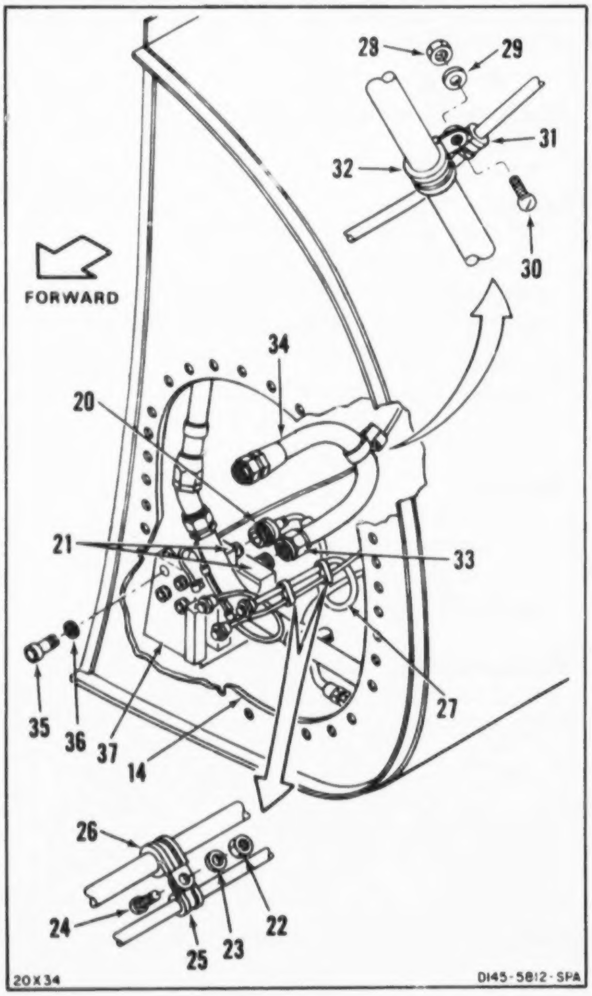
REMOVE BOOST PUMP

10. Remove lockwire and **disconnect electrical connector (20)** from boost pump (21).
11. **Remove two nuts (22), washers (23), and screws (24)** joining two electrical wire clamps (25) to two electrical cable clamps (26). **Remove electrical cable (27) and clamps (26).**
12. **Remove nut (28), washer (29), and screw (30)** joining electrical wire clamp (31) to hose clamp (32).
13. **Disconnect hose connector (33)** from boost pump (21). **Remove hose (34)** from tank. Cap boost pump and plug hose.
14. **Remove four bolts (35)** and washers (36).
15. Maneuver boost pump (21) from bracket (37). **Remove boost pump (21).**
16. Cover access hole in tank (14). Use barrier material (E80) and tape (E388).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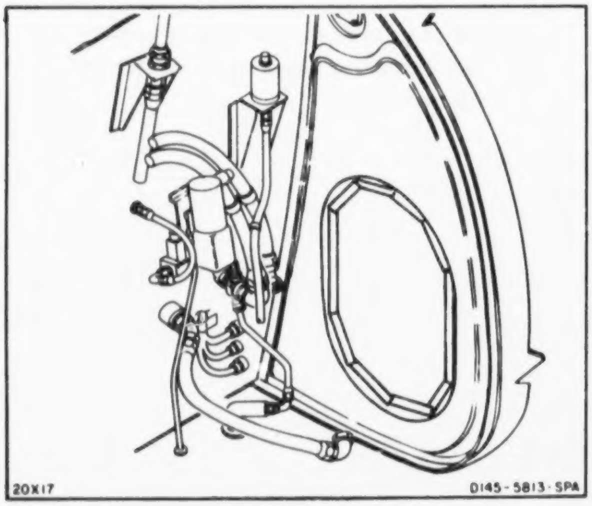
FOLLOW-ON MAINTENANCE:

None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END OF TASK

10-80 INSTALL AFT FUEL TANK BOOST PUMP 10-80

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 30 to 150 Inch-Pounds
Torque Wrench, 700 to 1600 Inch-Pounds
Wrench, Open End, 1 1/8-Inch
Wrench, Open End, 1 1/2-Inch

Materials:
Lockwire (E233)
Dry Cleaning Solvent (E162)
Gloves (E186)
Cloths (E135)

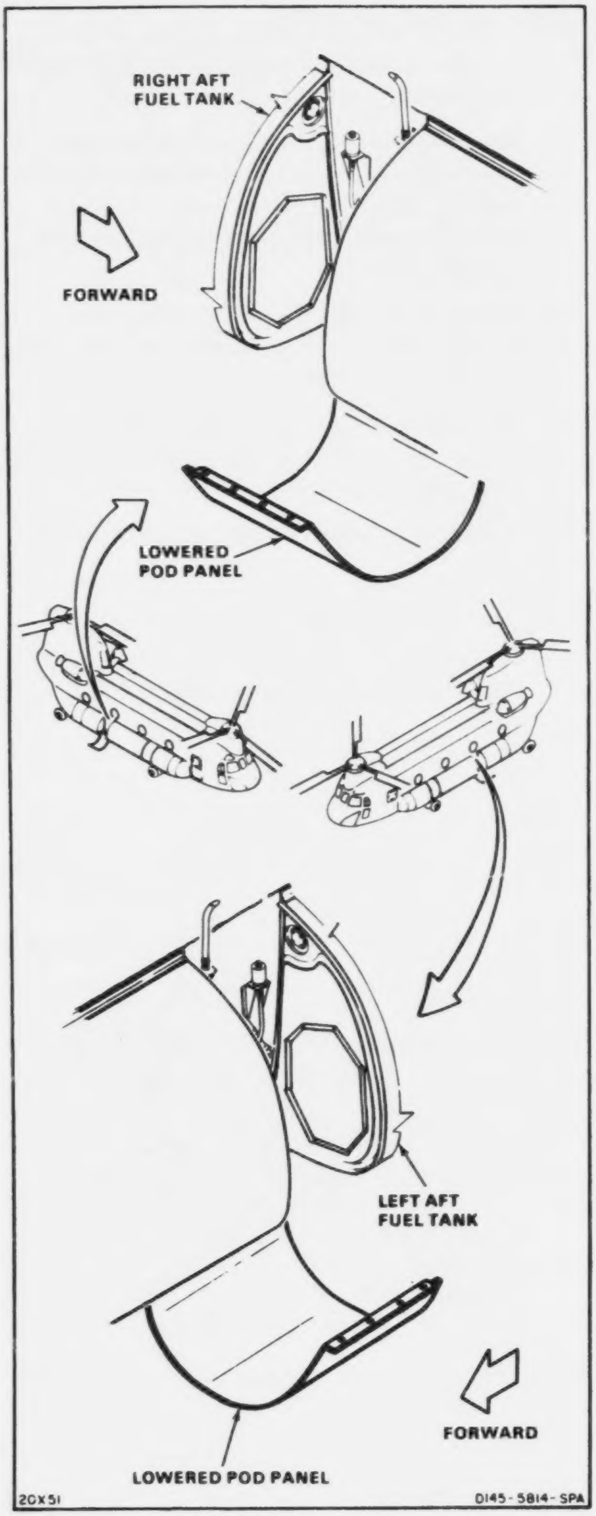
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


RIGHT AFT FUEL TANK
FORWARD
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LEFT AFT FUEL TANK
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10-80 INSTALL AFT FUEL TANK BOOST PUMP (Continued) 10-80

NOTE

Procedure is same to install boost pump in No. 1 or No. 2 fuel system aft fuel tank. Installation of No. 1 (left) boost pump is shown here.

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

INSTALL BOOST PUMP

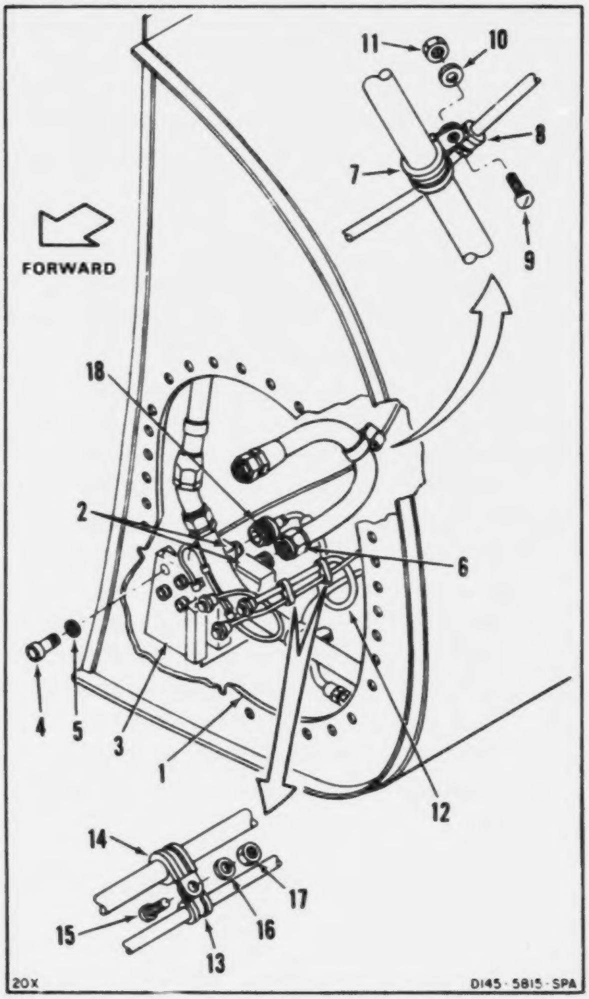
1. Remove barrier material and tape from access hole in tank (1). Clean tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

2. **Position boost pump (2)** on pump bracket (3). Install four bolts (4) and washers (5).
3. Remove plug from hose (6) and cap from boost pump (2). **Connect hose** to boost pump. **Torque hose connector to 1075 inch-pounds.**
4. Position hose clamp (7) and electrical wire clamp (8). Install screw (9), washer (10), and nut (11).
5. Position electrical cable (12). Position two electrical wire clamps (13) and two electrical cable clamps (14). Install two screws (15), washers (16), and nuts (17).
6. Connect electrical connector (18) to boost pump (2). Lockwire connector to boost pump. Use lockwire (E233).

INSPECT



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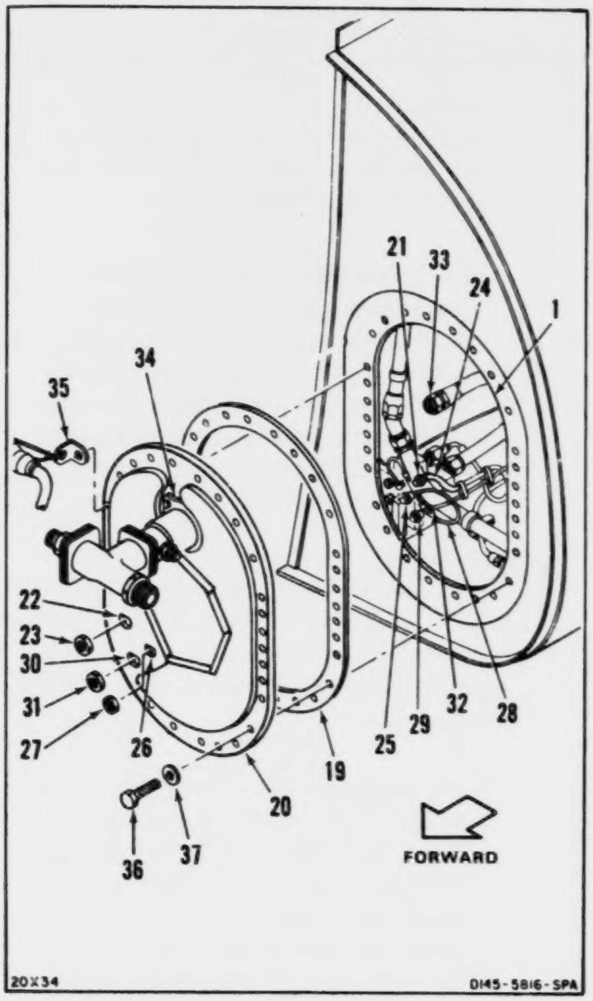
10-80 INSTALL AFT FUEL TANK BOOST PUMP (Continued) 10-80

INSTALL ACCESS DOOR

7. **Position gasket (19) and access door (20)** next to access hole (1). Insert electrical receptacle (21) through hole (22) in door. Check that packing is installed on receptacle. **Install and hand tighten locknut (23)** on electrical receptacle. Remove tag from cable (24).
8. Insert electrical receptacle (25) through hole (26) in door (20). Check that packing is installed on receptacle. **Install and hand tighten locknut (27)** on electrical receptacle. Remove tag from cable (28).
9. **Insert electrical receptacle (29) through hole (30)** in door (20). **Install and hand tighten locknut (31)** on electrical receptacle. Remove tag from cable (32).
10. Remove plug from hose (33) and cap from adapter (34) on inside of door (20). **Connect hose** to adapter.
11. **Position** gasket (19) and **access door (20) against face of tank (2). Position lanyard release cable (35) as shown.** Install 30 bolts (36) and washers (37). **Torque bolts to 70 inch-pounds.**
12. **Tighten three locknuts (23, 27, and 31).**



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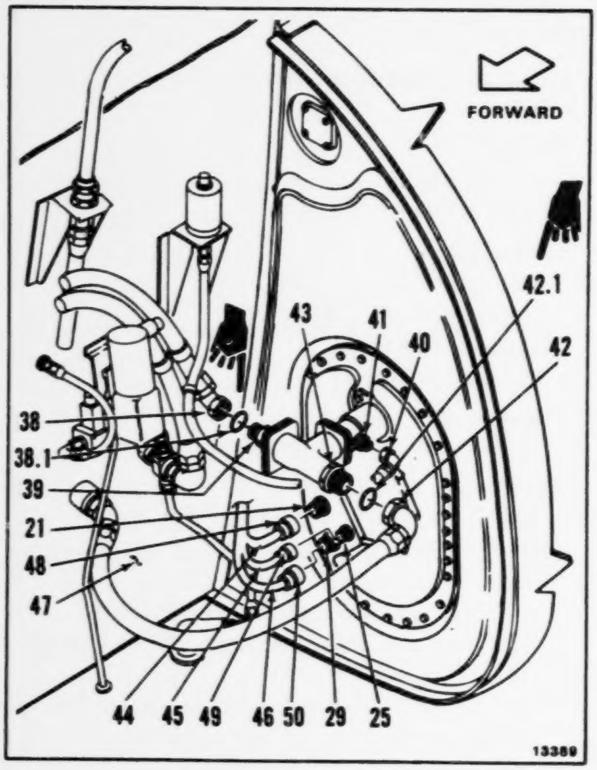
10-80 INSTALL AFT FUEL TANK BOOST PUMP (Continued) 10-80

CAUTION

Do not allow adapters or fittings to turn when installing fuel hoses to tank access door. Otherwise, fittings can fail and cause fuel blockage.

13. Remove plug from hose (38) and cap from fitting (39). Install conical seal (38.1) in hose fitting. Hold fitting with wrench. **Connect hose.**
14. Remove plug from hose (40) and cap from adapter (41). Hold adapter with wrench. **Connect hose.**
15. Remove plug from hose (42) and cap from fitting (43). Install conical seal (42.1) in hose fitting. Hold fitting with wrench. **Connect hose.**
16. Remove tape attaching three electrical cables (44, 45, and 46) to fuselage (47).
17. Connect plug (48) to receptacle (21). Remove tag.
18. Connect plug (49) to receptacle (25). Remove tag.
19. Connect plug (50) to receptacle (29). Remove tag.



INSPECT

FOLLOW-ON MAINTENANCE:

Install fuel level shutoff valve (Task 10-82).

Perform vent system flow test (Task 10-118).

Test aft auxiliary fuel tank (Task 10-32).

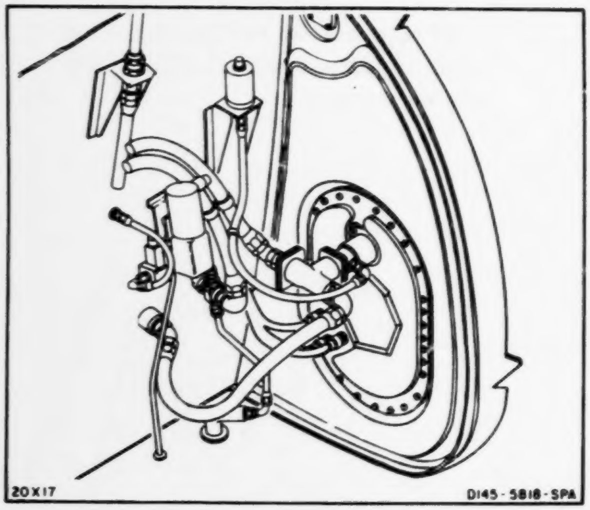
Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of appropriate fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-4).

Close and lock aft intertank pod panel (Task 2-188).



END OF TASK

10-81 REMOVE AFT TANK FUEL LEVEL SHUTOFF VALVE 10-81

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic Tool Kit,
NSN 5180-00-323-4692

Materials:

Cloths (E135)
Barrier Material (E80)
Tape (E388)
Paper Tags (E264)

Personnel Required:

Medium Helicopter Repairer

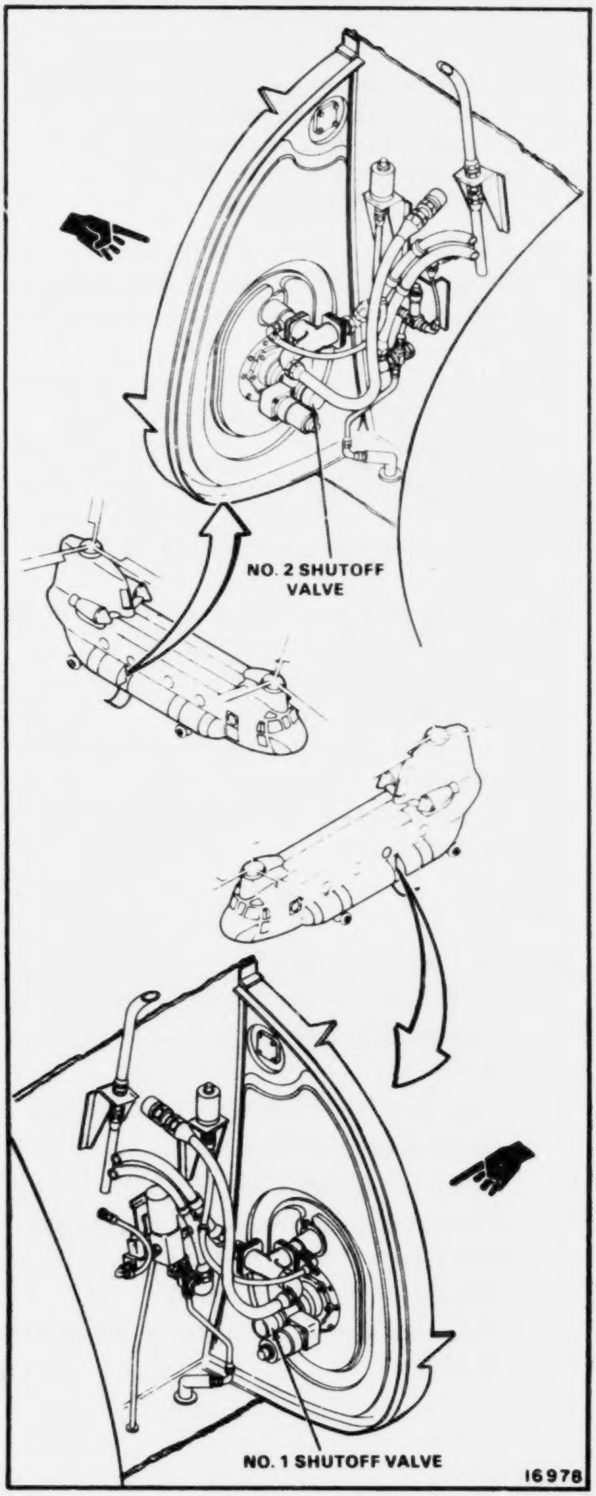
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
All Tanks on Affected Side of Helicopter Defueled and Both Crossover Valves Closed (Task 10-34 or 10-35)
Aft Intertank Access Panel on Affected Side of Helicopter Removed (Task 2-185)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

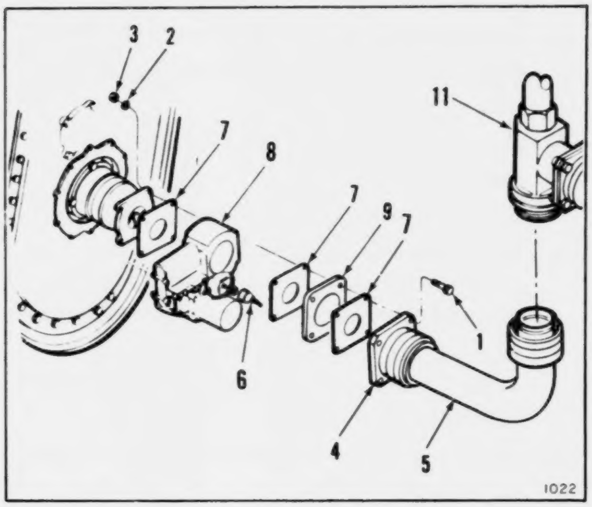


10-81 REMOVE AFT TANK FUEL LEVEL SHUTOFF VALVE (Continued) 10-81

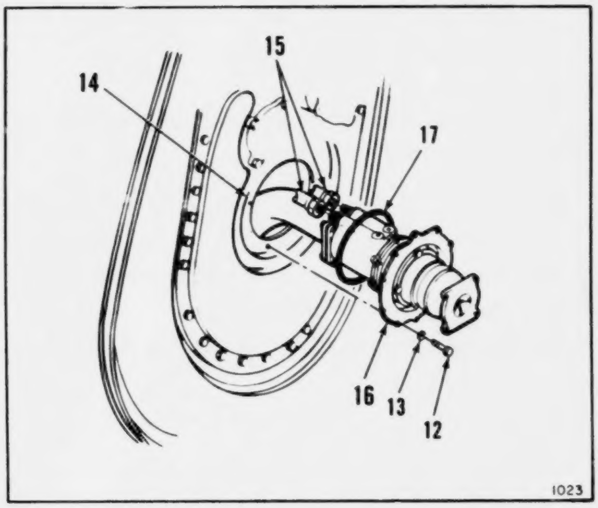
NOTE

Procedure is similar to remove fuel level shutoff valve in No. 1 or No. 2 fuel system. Removal of No. 2 (right) valve is shown here.

METHOD USING VALVE 114PS494-1 AND ELBOW ASSEMBLY 401545-1 (WITHOUT 11)

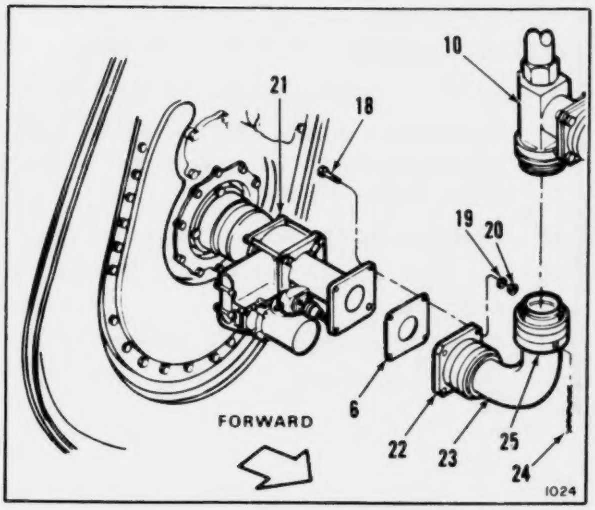


1. Remove four bolts (1), washers (2), and nuts (3).
2. **Slide union adapter (4) forward**, into elbow assembly (5). Use grounded container to catch spilled fuel.
3. **Disconnect electrical connector (6).**
4. Remove three gaskets (7), valve (8), and spacer (9).
5. **Remove adapter (4) and elbow (5)** from tee (11). Plug holes in adapter, elbow, and tee.



6. **Remove ten bolts (12)** and washers (13).
7. **Withdraw fuel valve (16)** from tank (14) for access to two hose connections (15). Tag and **disconnect hose connections.**
8. **Maneuver fuel valve (16) from tank (14).** Cover hole in tank. Use barrier material (E80) and tape (E388).
9. Remove packing (17) from mounting flange of fuel valve (16).
10. Go to step 23.

METHOD USING VALVE 114PS494-1 AND ELBOW ASSEMBLY 401116-3 (WITHOUT 11)

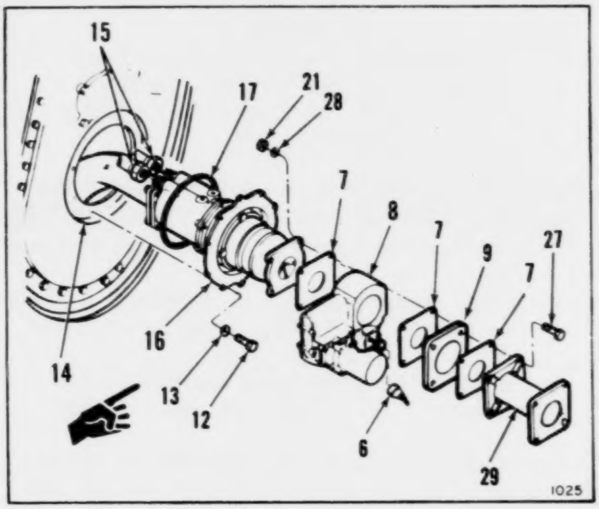


11. Remove four bolts (18), washers (19), and nuts (20). Loosen four nuts (21).
12. **Slide union adapter (22) forward**, into elbow assembly (23). Use grounded container to catch spilled fuel.
13. Remove gasket (6).
14. Remove lockwire (24). **Loosen coupling nut (25).**
15. **Remove adapter (22) and elbow (23)** from tee (10). Plug holes in adapter, elbow, and tee.

GO TO NEXT PAGE

10-81 REMOVE AFT TANK FUEL LEVEL SHUTOFF VALVE (Continued) 10-81

16. **Disconnect electrical connector (6).**
17. Remove four bolts (27), washers (28), and nuts (21).
18. **Remove tube (29)**, gaskets (7), spacer (9), **and valve (8).**
19. **Remove ten bolts (12)** and washers (13).
20. **Withdraw fuel valve (16)** from tank (14) for access to two hose connections (15). Tag and **disconnect hose connections.**
21. **Maneuver fuel valve (16) from tank (14).** Cover hole in tank. Use barrier material (E80) and tape (E388).
22. Remove packing (17) from mounting flange of fuel valve (16).

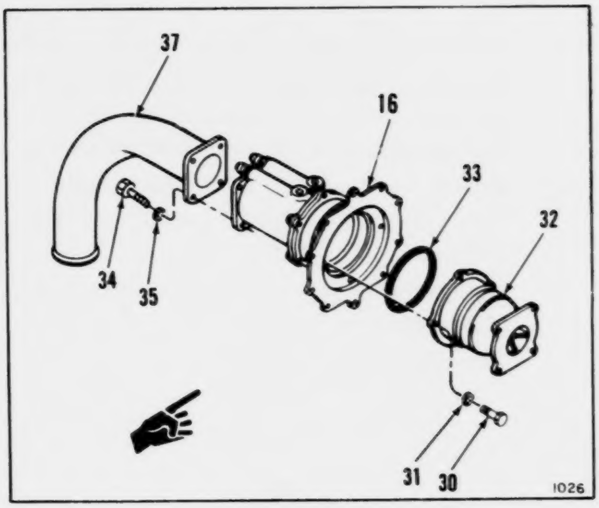


23. Remove four bolts (30) and washers (31).

CAUTION

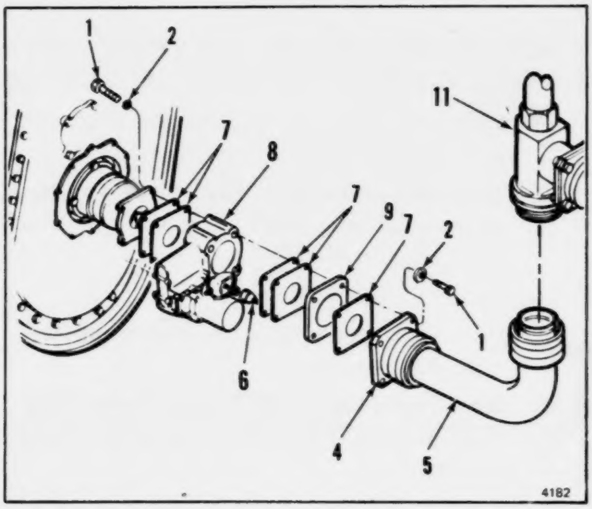
Breakaway fitting (32) is fragile. Handle with care.

24. **Remove fitting (32)** and packing (33) from valve (16).
25. Remove four bolts (34) and washers (35). **Remove tube (37).**
26. Clean up spilled fuel. Use cloths (E135).



METHOD USING VALVE 114PS494-2 AND ELBOW ASSEMBLY 401545-1 (WITH 11)

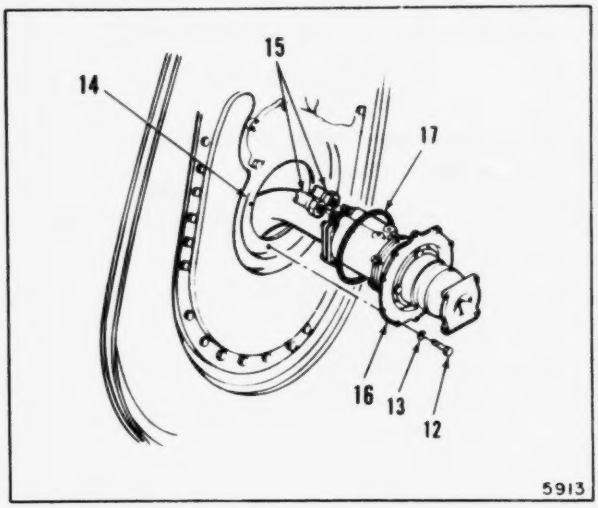
27. Remove eight bolts (1) and washers (2).
28. **Slide union adapter (4) forward,** into elbow assembly (5). Use grounded container to catch spilled fuel.
29. **Disconnect electrical connector (6).**
30. Remove five gaskets (7), valve (8), and spacer (9).
31. **Remove adapter (4) and elbow (5)** from tee (11). Plug holes in adapter, elbow, and tee.



GO TO NEXT PAGE

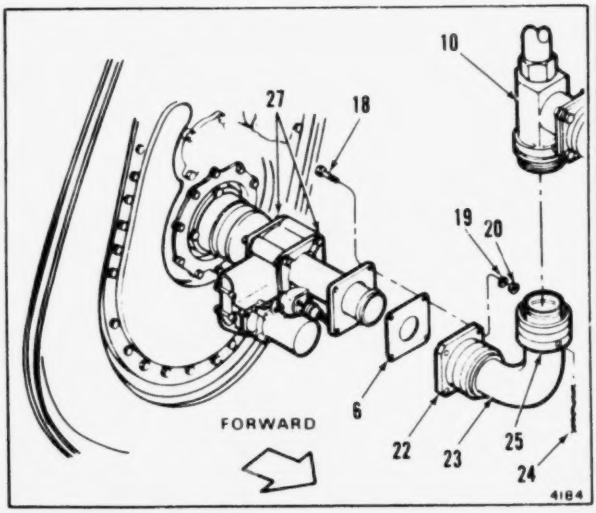
10-81 REMOVE AFT TANK FUEL LEVEL SHUTOFF VALVE (Continued) 10-81

32. **Remove ten bolts (12)** and washers (13).
33. **Withdraw fuel valve (16)** from tank (14) for access to two hose connections (15). Tag and **disconnect hose connections.**
34. **Maneuver fuel valve (16) from tank (14).** Cover hole in tank. Use barrier material (E80) and tape (E388).
35. Remove packing (17) from mounting flange of fuel valve (16).
36. Go to step 49.

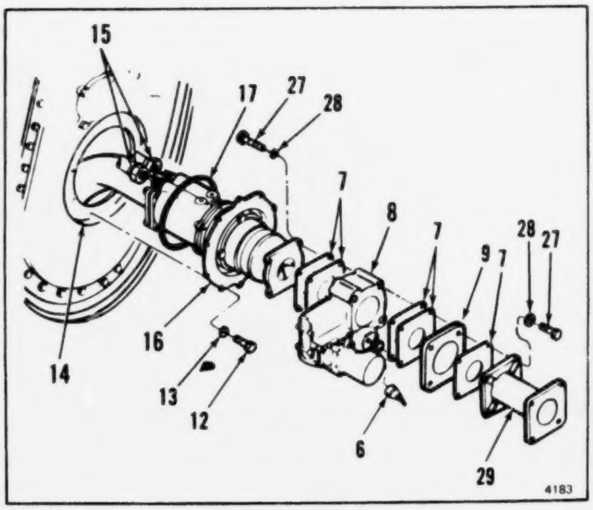


METHOD USING VALVE 114PS494-2 AND ELBOW ASSEMBLY 401116-3 (WITH 11)

37. Remove four bolts (18), washers (19), and nuts (20). Loosen eight bolts (27).
38. **Slide union adapter (22) forward,** into elbow assembly (23). Use grounded container to catch spilled fuel.
39. Remove gasket (6).
40. Remove lockwire (24). **Loosen coupling nut (25).**
41. **Remove adapter (22) and elbow (23)** from tee (10). Plug holes in adapter, elbow, and tee.



42. **Disconnect electrical connector (6).**
43. Remove eight bolts (27) and washers (28).
44. **Remove tube (29),** gaskets (7), spacer (9), **and valve (8).**
45. **Remove ten bolts (12)** and washers (13).
46. **Withdraw fuel valve (16)** from tank (14) for access to two hose connections (15). Tag and **disconnect hose connections.**
47. **Maneuver fuel valve (16) from tank (14).** Cover hole in tank. Use barrier material (E80) and tape (E388).
48. Remove packing (17) from mounting flange of fuel valve (16).



GO TO NEXT PAGE

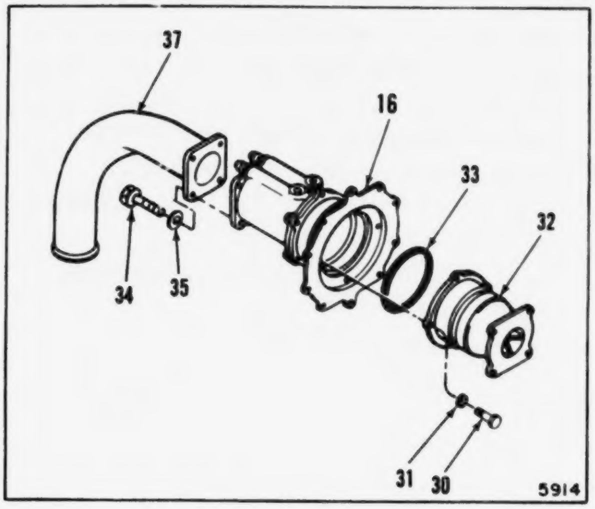
10-81 REMOVE AFT TANK FUEL LEVEL SHUTOFF VALVE (Continued) 10-81

49. Remove four bolts (30) and washers (31).

CAUTION

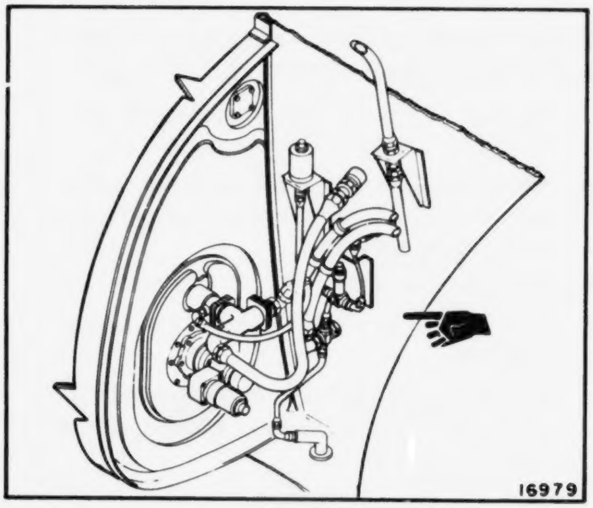
Breakaway fitting (32) is fragile. Handle with care.

50. **Remove fitting (32)** and packing (33) from valve (16).
51. Remove four bolts (34) and washers (35). **Remove tube (37).**
52. Clean up spilled fuel. Use cloths (E135).



FOLLOW-ON MAINTENANCE:

None



END OF TASK

10-82 INSTALL AFT TANK FUEL LEVEL SHUTOFF VALVE 10-82

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic Tool Kit,
NSN 5180-00-323-4692

Materials:
Dry Cleaning Solvent (E162)
Gloves (E186)
Lockwire (E233)
Sealant (E342.1)

Parts:
Packings
Gaskets

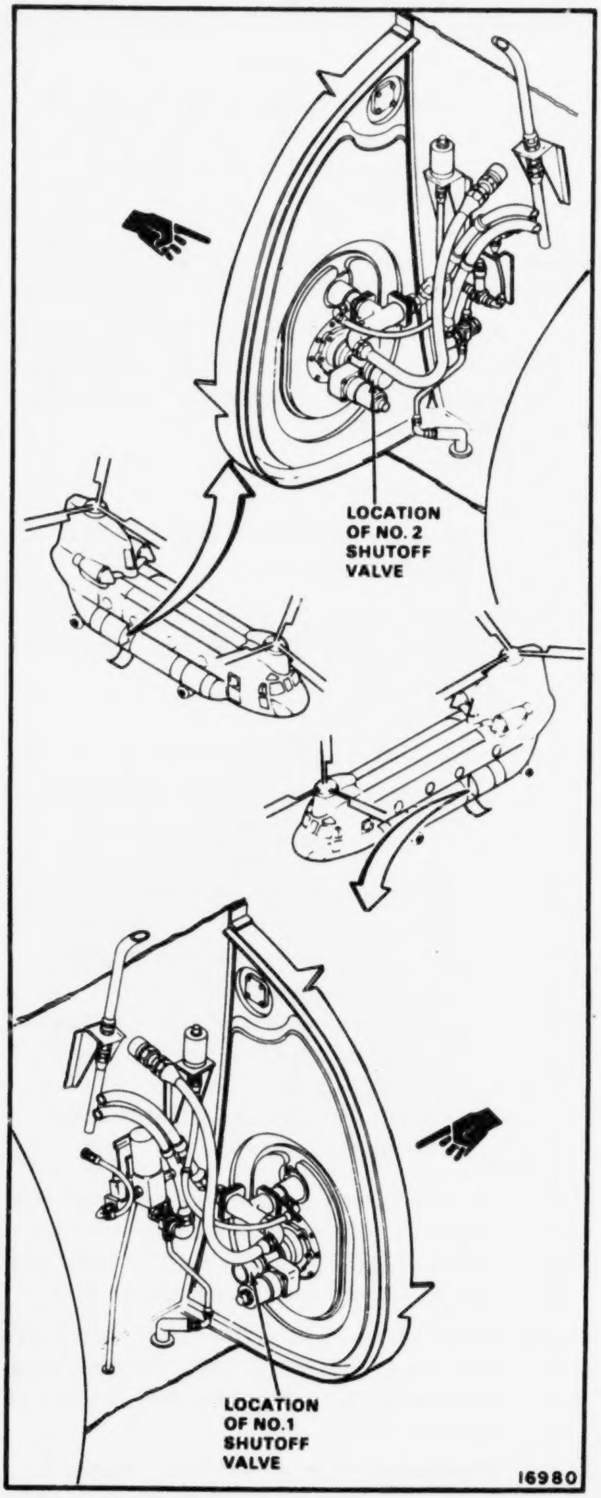
Personnel Required:
Medium Helicopter Repairer
Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


LOCATION
OF NO. 2
SHUTOFF
VALVE
LOCATION
OF NO.1
SHUTOFF
VALVE
16980

GO TO NEXT PAGE

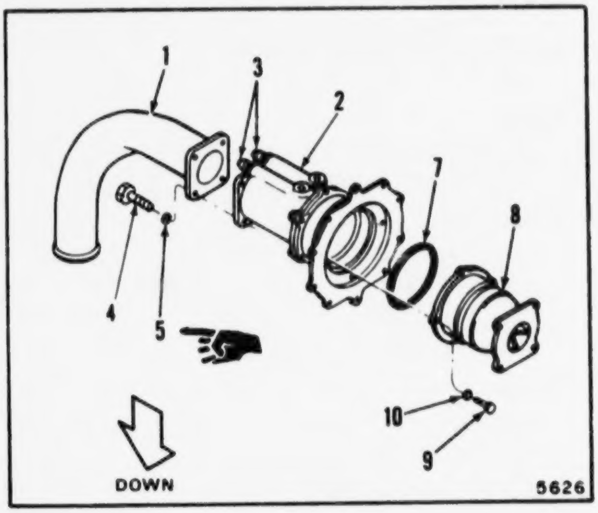
10-82 INSTALL AFT TANK FUEL LEVEL SHUTOFF VALVE (Continued) 10-82

NOTE

Procedure is similar to install fuel level shutoff valve in No. 1 or No. 2 fuel system. Installation of No. 2 (right) valve is shown here.

METHOD USING VALVE 114PS494-1 AND ELBOW ASSEMBLY 401545-1 (WITHOUT 11)

1. **Position tube (1)** on fuel valve (2). Make sure two hose connections (3) are at top and tube points down. **Install four bolts (4)** and washer (5).

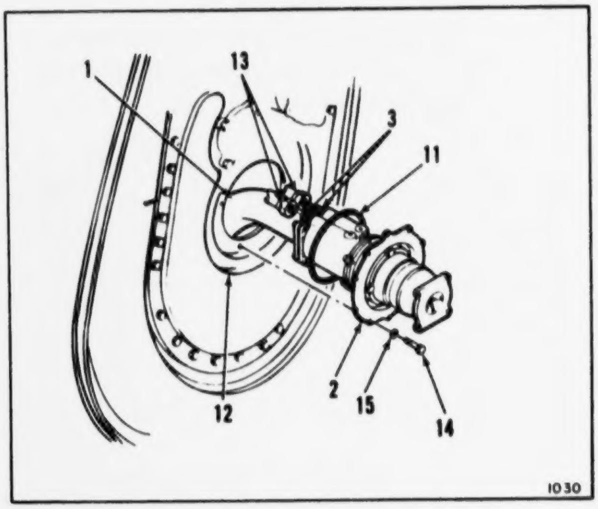


CAUTION

Breakaway fitting (8) is fragile. Handle with care.

2. Position packing (7) on fitting (8). **Position fitting** on valve (2). Install four bolts (9) and washers (10).

3. Install packing (11) on flange of valve (2).



WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

4. Remove tape and barrier material from hole in tank (12). Clean tape residue from tank. Use dry cleaning solvent (E162). Wear goggles to protect eyes. Wear gloves (E186).
5. Maneuver fuel valve (2) through hole in tank (12), tube (1) pointing down. Remove tags and **connect two hoses (13)** to valve connections (3).
6. **Position flange of valve (2) against tank (12)**, tube (1) pointing down. **Install ten bolts (14)** and washers (15).

GO TO NEXT PAGE

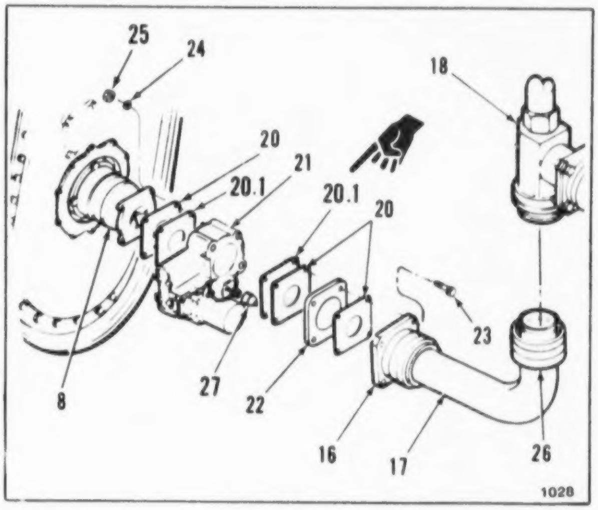
10-82 INSTALL AFT TANK FUEL LEVEL SHUTOFF VALVE (Continued)

7. Remove plugs from adapter (16), elbow (17), and tee (18).
8. **Position adapter (16) and elbow (17)** on tee (18).

NOTE

Gaskets (20.1) are used with shutoff valve pin AV16B2101D-1 only.

9. **Position three gaskets (20), two gaskets (20.1) coated with sealant (E342.1), valve (21), and spacer (22)** on fitting (8).
10. Slide adapter (16) aft. **Secure adapter.** Use four bolts (23), washers (24), and nuts (25). Tighten coupling (26) and bolts.
11. Connect electrical connector (27).



INSPECT

Go to FOLLOW-ON MAINTENANCE.

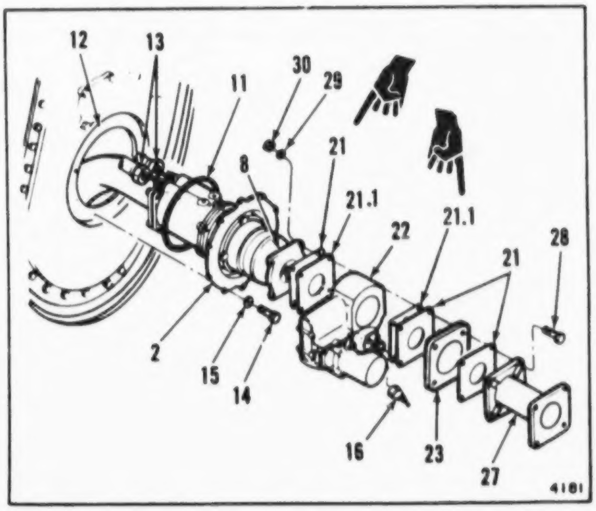
METHOD USING VALVE 114PS494-1 AND ELBOW ASSEMBLY 401116-3 (WITHOUT **11** *)*

12. Perform steps 1 and 2.
13. Install packing (11) in fuel valve (2).
14. Remove barrier material and tape from hole in tank (12). Maneuver fuel valve (2) partly into tank.
15. **Connect two hoses (13).**
16. Install ten bolts (14) and washers (15).

NOTE

Gaskets (21.1) are used with shutoff valve pin AV16B2101D-1 only.

17. **Position tube (27), three gaskets (21), two gaskets (21.1) coated with sealant (E342.1), spacer (23), and valve (22)** on fitting (8). **Secure parts loosely** with four bolts (28), washers (29), and nuts (30).
18. **Connect electrical connector (16).**



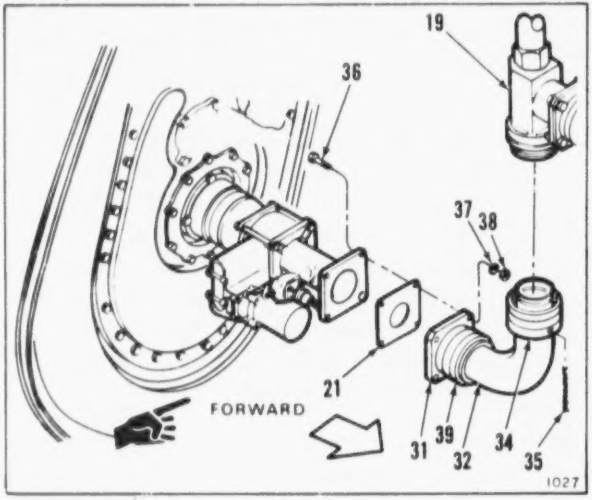
GO TO NEXT PAGE

10-82 INSTALL AFT TANK FUEL LEVEL SHUTOFF VALVE (Continued) 10-82

CAUTION

Two snap rings must be positioned at upper end of elbow where it connects to tee. Be sure flanges of snap rings are together. Damage to parts can occur if installation is not as shown.

19. Remove plugs from adapter (31), elbow (32), and tee (19).
20. **Install elbow (32)** with the two snap rings on tee (19). **Tighten coupling (34)** on tee. Install lockwire (E233) (35).
21. **Position gasket (21)** on adapter (31). **Slide adapter aft and install four bolts (36)**, washers (37), and nuts (38). Tighten coupling (39).



INSPECT

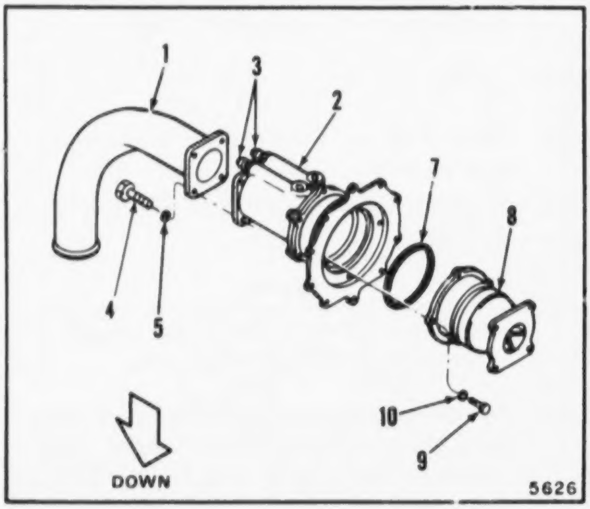
METHOD USING VALVE 114PS494-2 AND ELBOW ASSEMBLY 401545-1 (WITH 11)

22. **Position tube (1)** on fuel valve (2). Make sure two hose connections (3) are at top and tube points down. **Install four bolts (4),** washer (5).

CAUTION

Breakaway fitting (8) is fragile. Handle with care.

23. Position packing (7) on fitting (8). **Position fitting** on valve (2). Install four bolts (9) and washers (10).



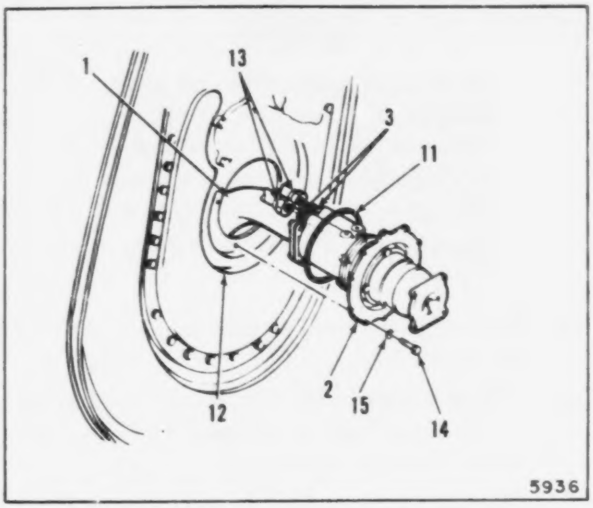
GO TO NEXT PAGE

10-82 INSTALL AFT TANK FUEL LEVEL SHUTOFF VALVE (Continued) 10-82

24. Install packing (11) on flange of valve (2).

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

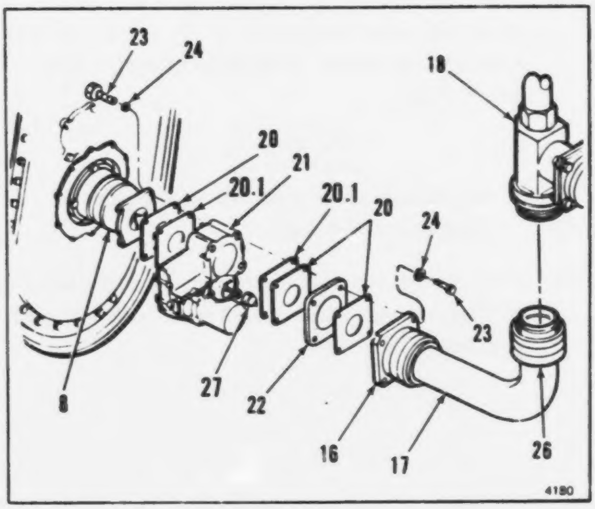


25. Remove tape and barrier material from hole in tank (12). Clean tape residue from tank. Use dry cleaning solvent (E162). Wear goggles to protect eyes. Wear gloves (E186).
26. Maneuver fuel valve (2) through hole in tank (12), tube (1) pointing down. Remove tags and **connect two hoses (13)** to valve connections (3).
27. **Position flange of valve (2) against tank (12),** tube (1) pointing down. **Install ten bolts (14)** and washers (15).
28. Remove plugs from adapter (16), elbow (17), and tee (18).
29. **Position adapter (16) and elbow (17)** on tee (18).

NOTE

Gaskets (20.1) are used with shutoff valve pin AV16B2101D-1 only.

30. **Position three gaskets (20), two gaskets (20.1) coated with sealant (E342.1), valve (21), and spacer (22)** on fitting (8).
31. Slide adapter (16) aft. **Secure adapter.** Use eight bolts (23), and washers (24). Tighten coupling (26) and bolts.
32. Connect electrical connector (27).



INSPECT

Go to FOLLOW-ON MAINTENANCE.

GO TO NEXT PAGE

10-82 INSTALL AFT TANK FUEL LEVEL SHUTOFF VALVE (Continued) 10-82

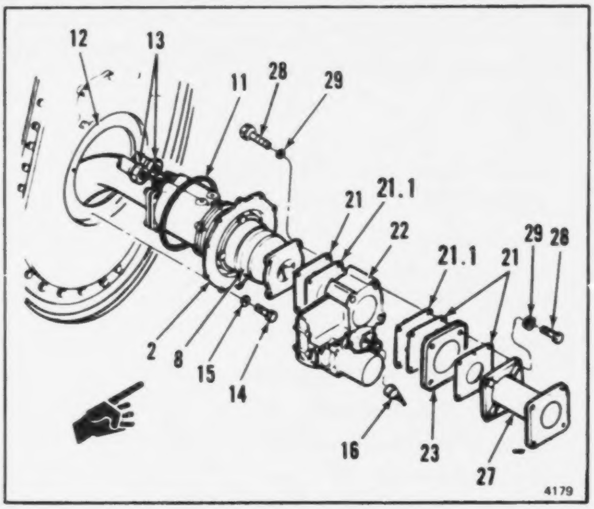
METHOD USING VALVE 114PS494-2 AND ELBOW ASSEMBLY 401116-3 (WITH 11)

33. Perform steps 1 and 2.
34. Install packing (11) in fuel valve (2).
35. Remove barrier material and tape from hole in tank (12). Maneuver fuel valve (2) partly into tank.
36. **Connect two hoses (13).**
37. Install ten bolts (14) and washers (15).

NOTE

Gaskets (21.1) are used with shutoff valve pin AV16B2101D-1 only.

38. **Position tube (27), three gaskets (21), two gaskets 21.1 coated with sealant (E342.1), spacer (23), and valve (22)** on fitting (8). **Secure parts loosely** with eight bolts (28) and washers (29).
39. **Connect electrical connector (16).**

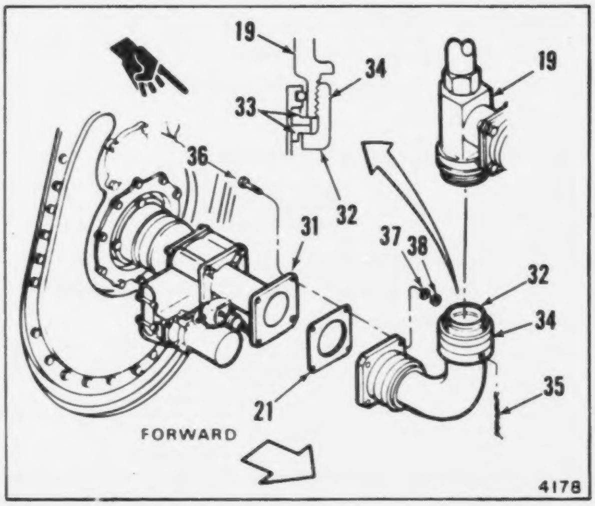


40. Remove plugs from adapter (31), elbow (32), and tee (19).

CAUTION

Two snap rings (33) must be positioned at upper end of elbow where it connects to tee. Be sure flanges of snap rings are together. Damage to parts can occur if installation is not as shown.

41. Check that snap rings (33) are aligned.
42. **Install elbow (32)** on tee (19). **Tighten coupling (34)** on tee. Install lockwire (E233) (35).
43. **Position gasket (21)** on adapter (31). **Slide adapter aft and install four bolts (36),** washers (37), and nuts (38). Tighten coupling (34) and bolts (36).



INSPECT

FOLLOW-ON MAINTENANCE:

Perform vent system flow test (Task 10-118).

Test aft tank (Task 10-32).

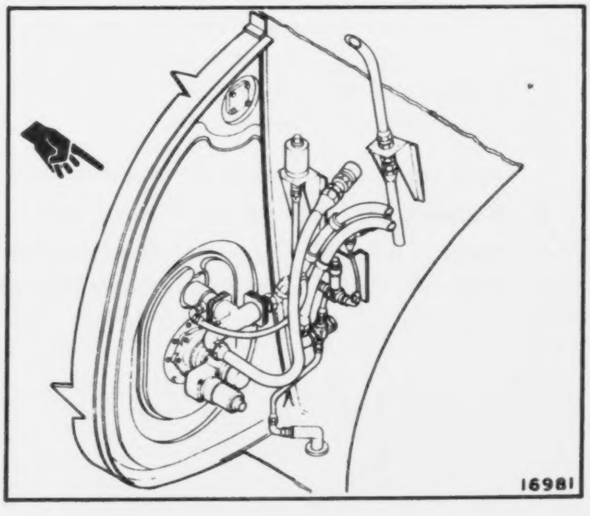
Refuel aircraft (Task 1-51).

Check operation of fuel shutoff valve (TM 55-1520-240-T).

Bleed fuel system (Task 10-121).

Check for leaks (Task 10-4).

Install aft intertank access panel (Task 2-188).



END OF TASK

10-83 REMOVE AFT FUEL TANK VENT VALVE 10-83

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Barrier Material (E80)
Tape (E388)

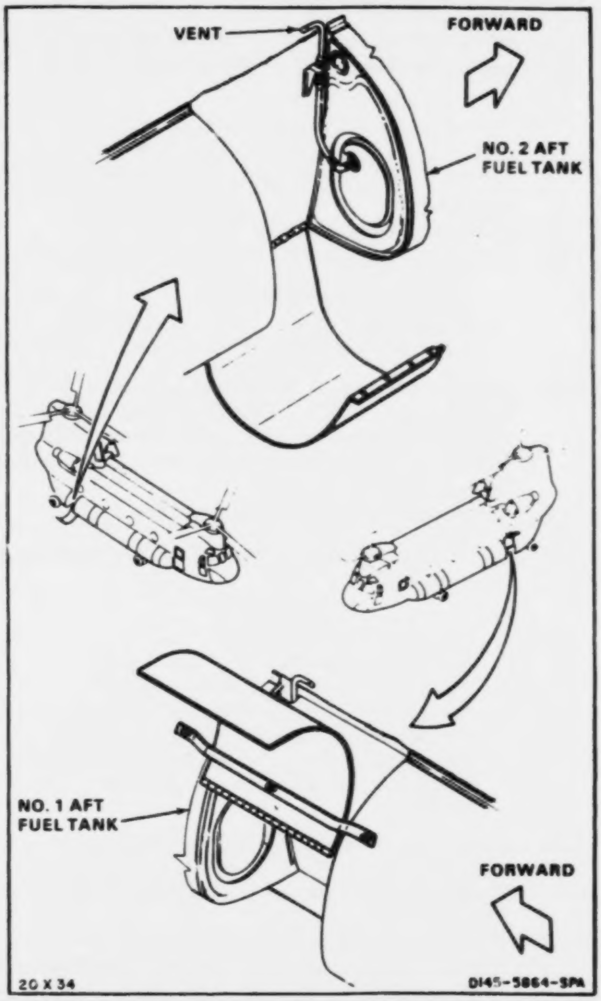
Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Aft Tank Defueled (Task 10-34 or 10-35)
Left Aft Access Door Raised And Latched Or Right Aft Access Panel Lowered, As Required (Task 2-185)

General Safety Instructions:

WARNING

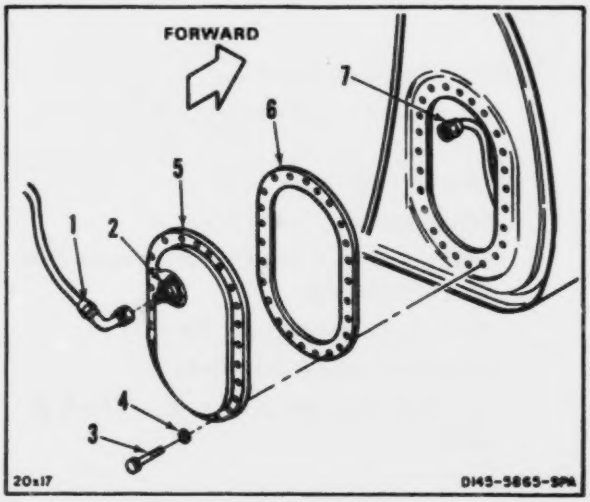
All regulations and instructions for handling fuels shall be strictly observed.


VENT
FORWARD
NO. 2 AFT FUEL TANK
NO. 1 AFT FUEL TANK
FORWARD
20 X 34
DI45-5864-SPA

NOTE

Procedure is same to remove vent valve from No. 1 or No. 2 aft auxiliary fuel tank. Removal of No. 2 (right) vent valve is shown here.

1. **Disconnect vent hose (1)** from fitting (2).
2. **Remove 30 bolts (3)** and washers (4).
3. **Pullout door (5)** and gasket (6) and disconnect vent hose (7). Remove door and gasket.


FORWARD
7
6
5
1
2
4
3
20x17
DI45-5865-SPA

GO TO NEXT PAGE

10-83 REMOVE AFT FUEL TANK VENT VALVE (Continued)

CAUTION

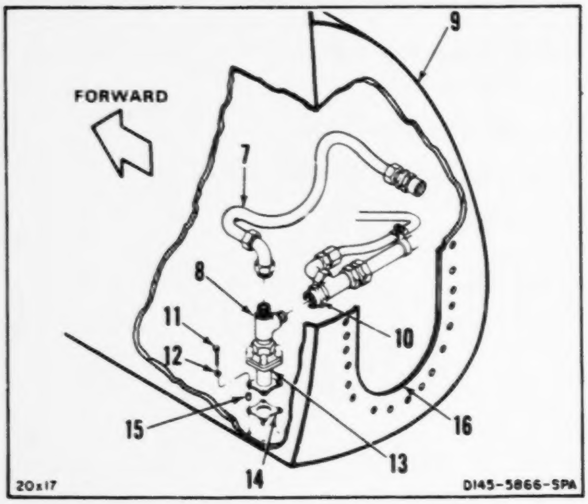
Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

4. Disconnect hose (7) from valve (8). Plug and **remove hose from tank (9).**
5. **Disconnect tube (10)** from valve (8).
6. **Remove four bolts (11)** and washers (12).
7. **Remove valve (8) and adapter (13)** from tank (9) as a unit.

NOTE

Four different types of aft fuel cells are used on the helicopter. Each is interchangeable but has a different assembly between valve adapter and cell. Goodyear cells have four bushings, FPT cells have an adapter plate, and Uniroyal cells have nothing between adapter and cell.

8. **Remove shim plate (14)** or four bushings (15) from tank (9).
9. Cover access hole (16) in tank (9). Use barrier material (E80) and tape (E388).



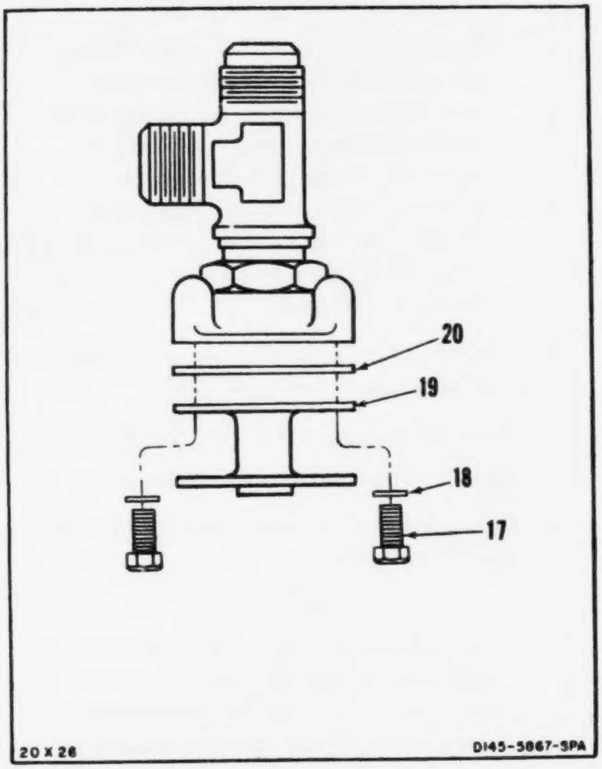
GO TO NEXT PAGE

10-83 REMOVE AFT FUEL TANK VENT VALVE (Continued) 10-83

10. Remove four bolts (17), washers (18), and adapter (19).
11. Remove gasket (20).

FOLLOW-ON MAINTENANCE:

None


20
19
18
17
20 X 26
D145-5867-SPA

END OF TASK

10-84 INSTALL AFT FUEL TANK VENT VALVE 10-84

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Dry Cleaning Solvent (E162)
Cloths (E135)
Gloves (E186)

Parts:
Gasket

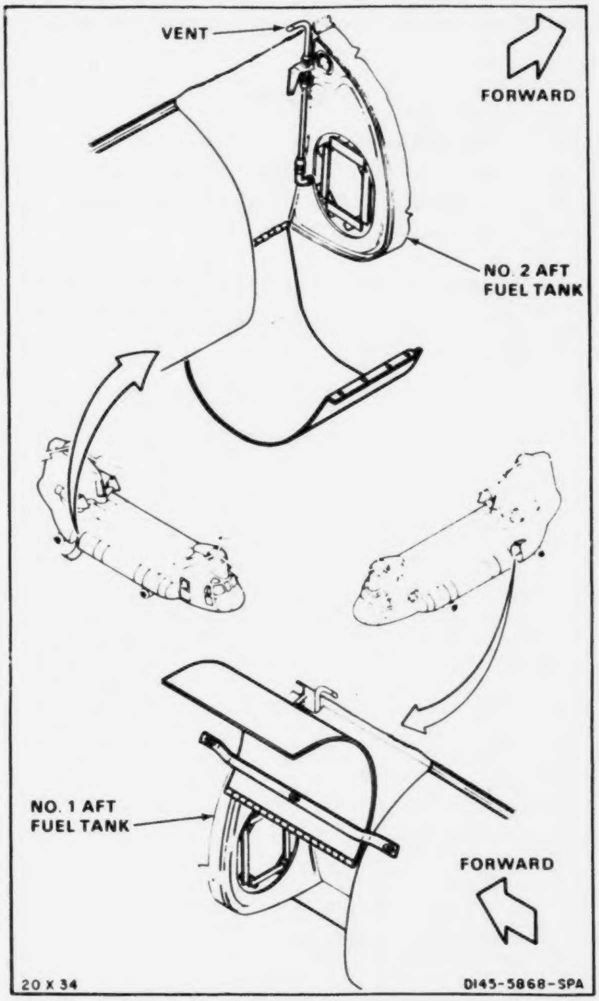
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P
Task 10-117

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


VENT
FORWARD
NO. 2 AFT FUEL TANK
NO. 1 AFT FUEL TANK
FORWARD
20 X 34
D145-5868-SPA

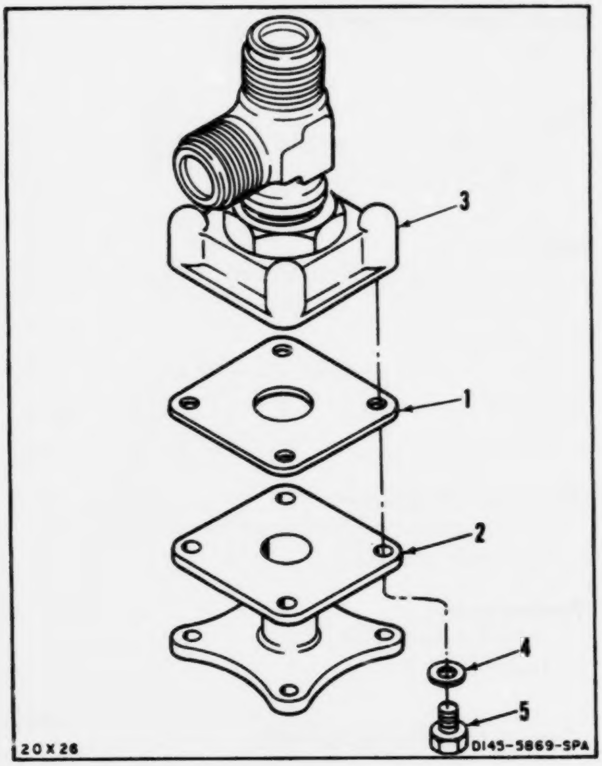
GO TO NEXT PAGE

10-84 INSTALL AFT FUEL TANK VENT VALVE (Continued) 10-84

NOTE

Procedure is same to install vent valve on No. 1 or No. 2 aft fuel tank. Installation of No. 2 (right) vent valve is shown here.

1. Position gasket (1) and adapter (2) on vent valve (3). Install four washers (4) and bolts (5).



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10-84 INSTALL AFT FUEL TANK VENT VALVE (Continued) 10-84

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

2. Remove barrier material and tape covering hole (6) in tank (7). Remove tape residue from tank. Use dry cleaning solvent (E162) and cloths (E135). Wear goggles to protect eyes. Wear gloves (E186).

CAUTION

Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

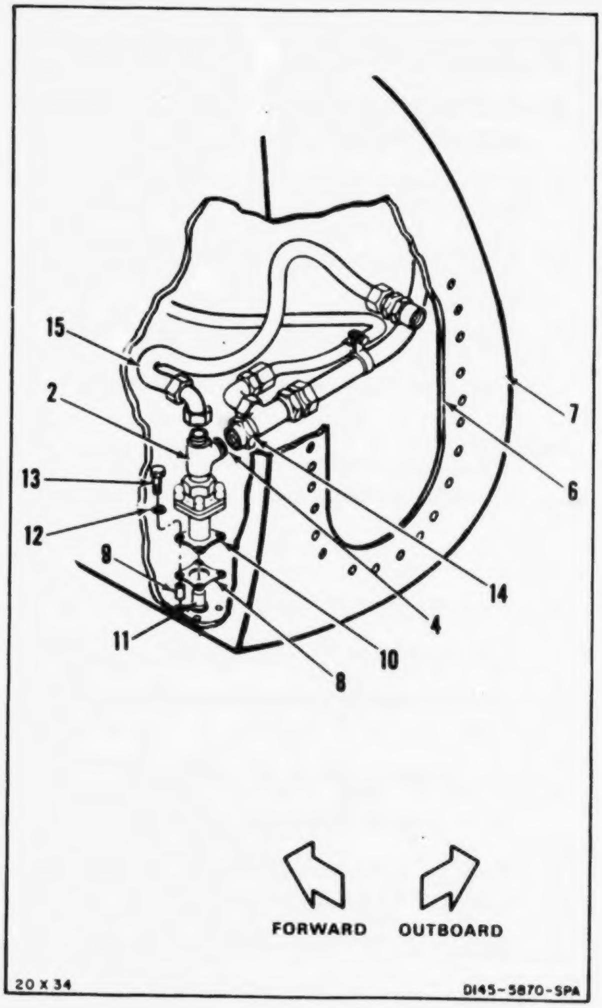
NOTE

Four different types of aft fuel cells are used on the helicopter. Each is interchangeable but has a different assembly between valve adapter and cell. Goodyear cells have four bushings, FPT cells have an adapter plate, and Uniroyal cells have nothing between adapter and cell.

3. **Position shim plate (8) or four bushings (9), adapter (10),** and valve (2) with port (4) outboard, over vent valve (11), on floor of tank (7).
4. **Install four washers (12) and bolts (13).**
5. **Connect tube (14)** to port (4) of valve (2).
6. Remove plug from hose (15). **Connect hose** to valve (2).

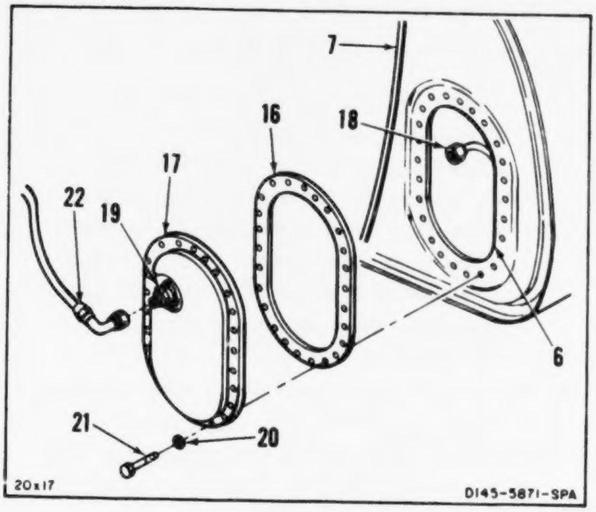
INSPECT

GO TO NEXT PAGE



10-84 INSTALL AFT FUEL TANK VENT VALVE (Continued) 10-84

7. Perform vent system pressure test (10-117).
8. **Position** gasket (16) and **door (17) next to access hole (8).**
9. Connect vent hose (18) to inside connector of fitting (19).
10. Position gasket (16) and door (17) against tank (7).
11. **Install** 30 washers (20) and **bolts (21).**
12. **Connect vent hose (22)** to fitting (19).



INSPECT

FOLLOW-ON MAINTENANCE:

Test aft fuel tank (Task 10-32).

Perform vent system flow test (Task 10-118).

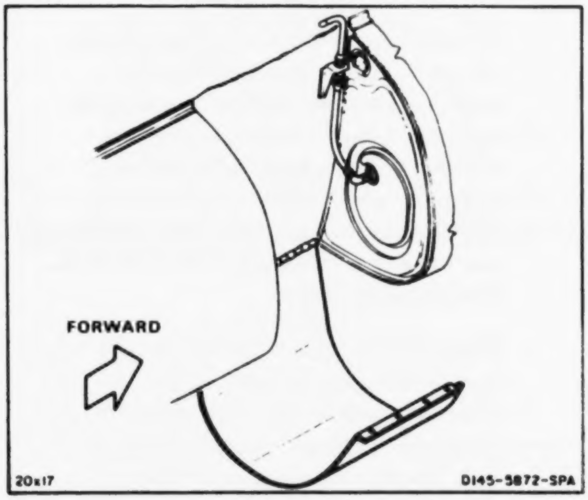
Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Inspect system for leaks (Task 10-4).

Install right aft access panel or lower and latch left aft access door (Task 2-188).



END OF TASK

10-85 REMOVE AUXILIARY FUEL PUMP PRESSURE SWITCH 10-85

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Cloth (E135)

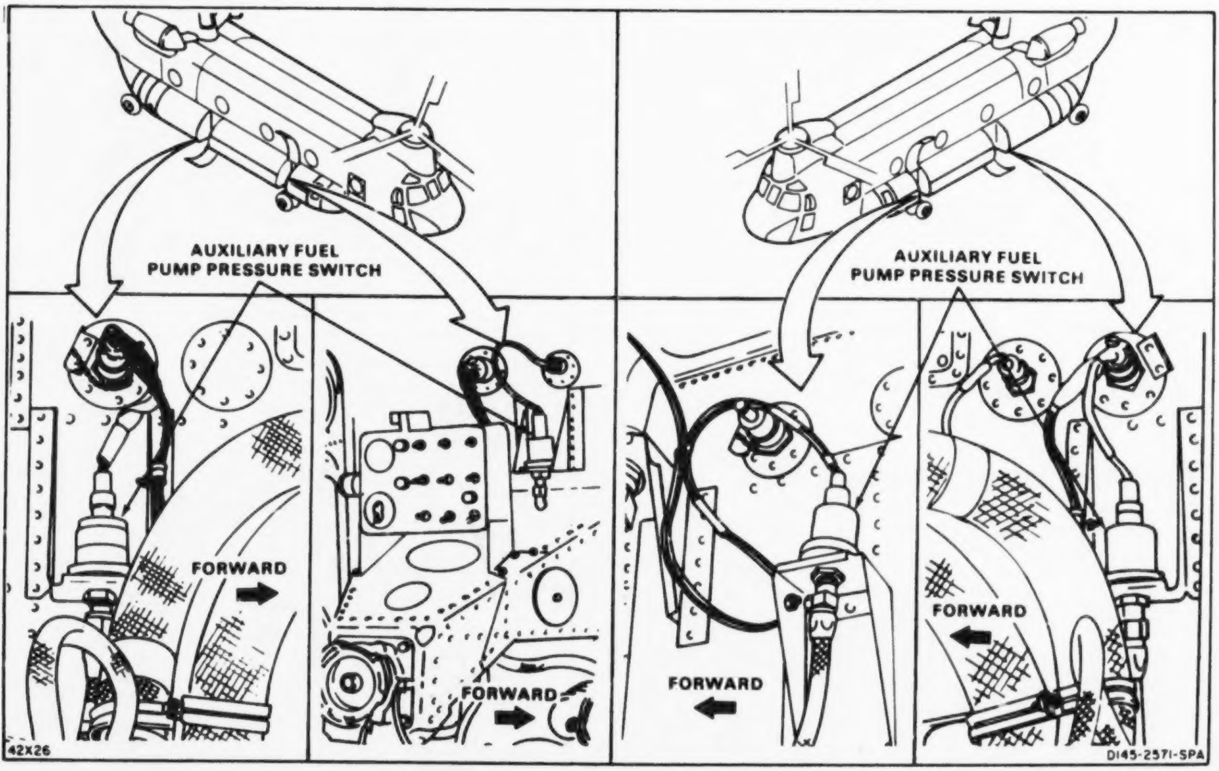
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Helicopter Grounded (Task 1-29)
- Aft Intertank Access Panel Opened (Task 2-185)
- Forward Landing Gear Access Door Opened (Task 2-2)
- Grounded Container, Two Gallon

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


AUXILIARY FUEL PUMP PRESSURE SWITCH
FORWARD
FORWARD
AUXILIARY FUEL PUMP PRESSURE SWITCH
FORWARD
FORWARD
42X26
D145-2571-SPA

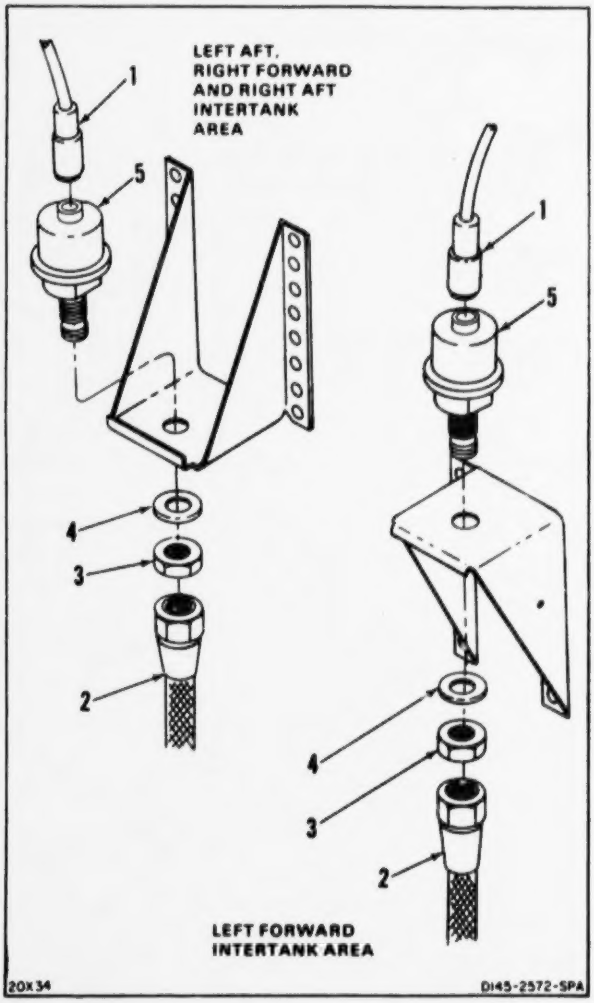
GO TO NEXT PAGE

10-85 REMOVE AUXILIARY FUEL PUMP PRESSURE SWITCH (Continued) 10-85

NOTE

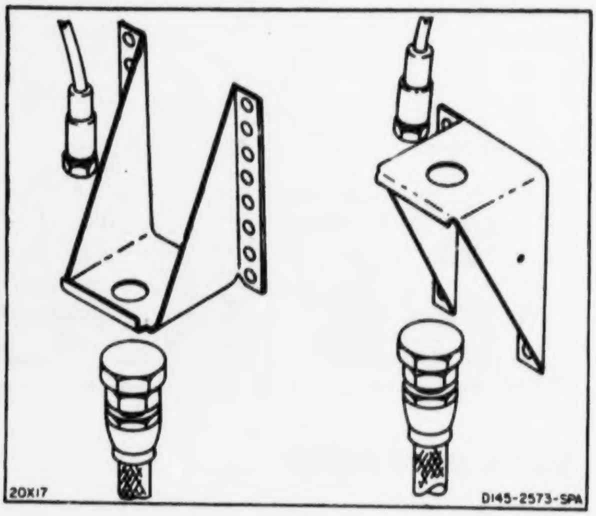
There are four auxiliary fuel pump pressure switches in fuel system. Procedure is same for removing any pressure switch.

1. **Disconnect electrical connector (1).**
2. **Disconnect hose (2).** Use container for any spilled fuel.
3. Remove nut (3) and washer (4) from pressure switch (5).
4. **Remove pressure switch (5).**
5. Plug hose (2) and cap switch (5).
6. Clean up any spilled fuel. Use cloths (E135).


LEFT AFT,
RIGHT FORWARD
AND RIGHT AFT
INTERTANK
AREA
1
5
4
3
2
1
5
4
3
2
LEFT FORWARD
INTERTANK AREA
20X34
D145-2572-SPA

FOLLOW-ON MAINTENANCE:

None


20X17
D145-2573-SPA

END OF TASK

10-86 INSTALL AUXILIARY FUEL PUMP PRESSURE SWITCH 10-86

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

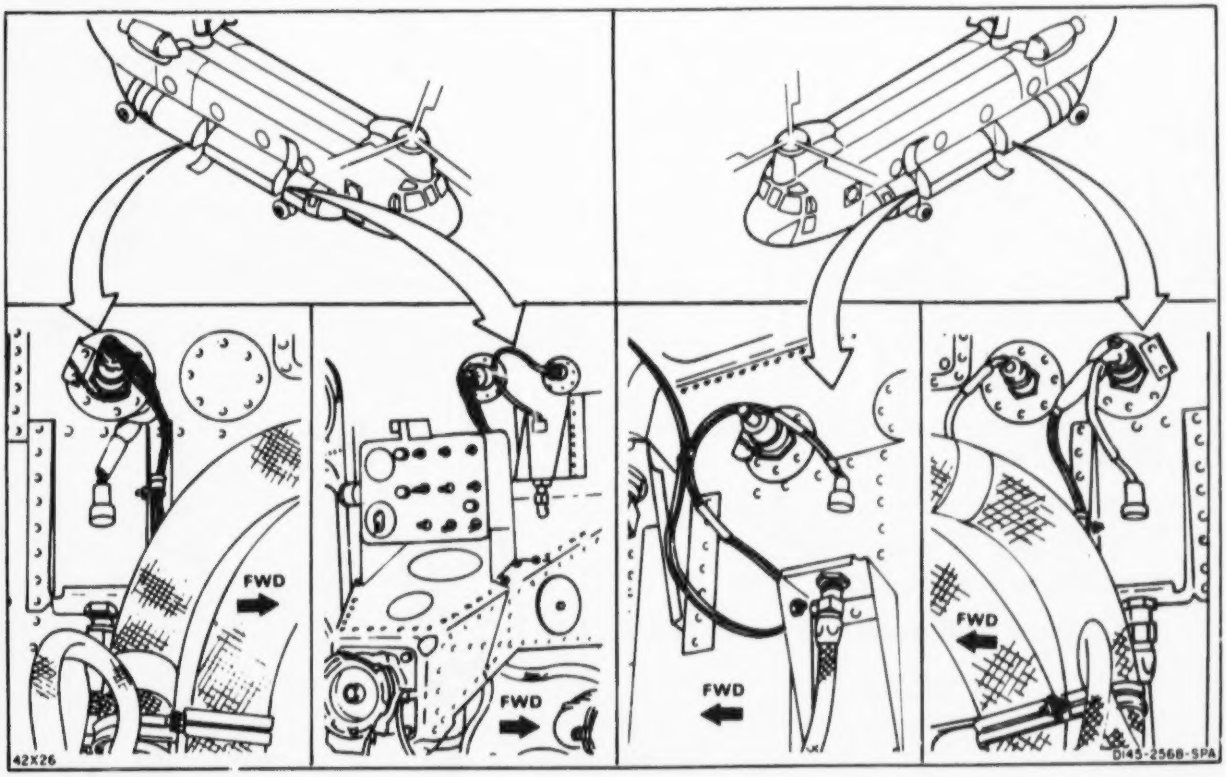
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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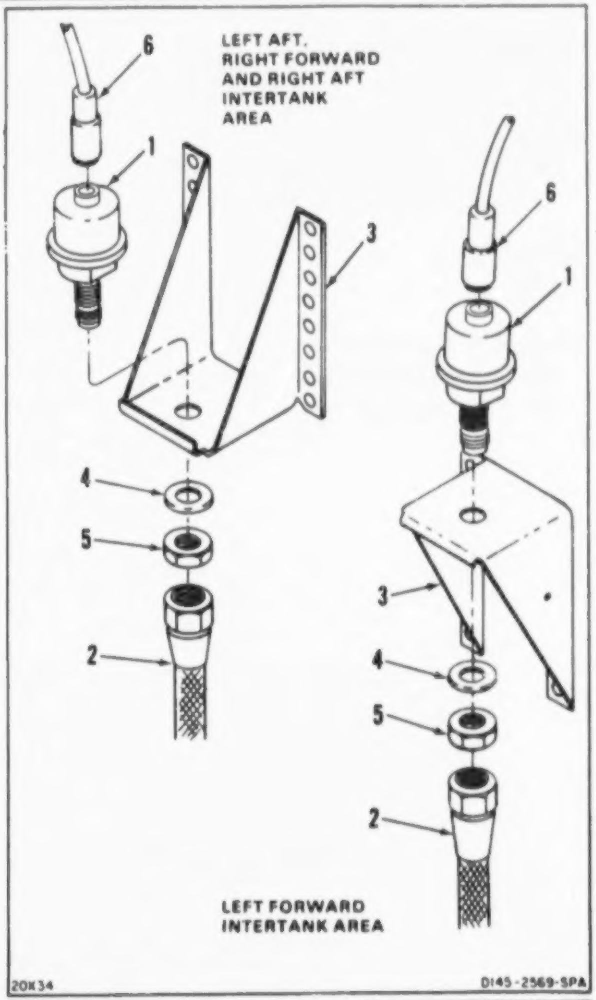
10-86 INSTALL AUXILIARY FUEL PUMP PRESSURE SWITCH (Continued) 10-86

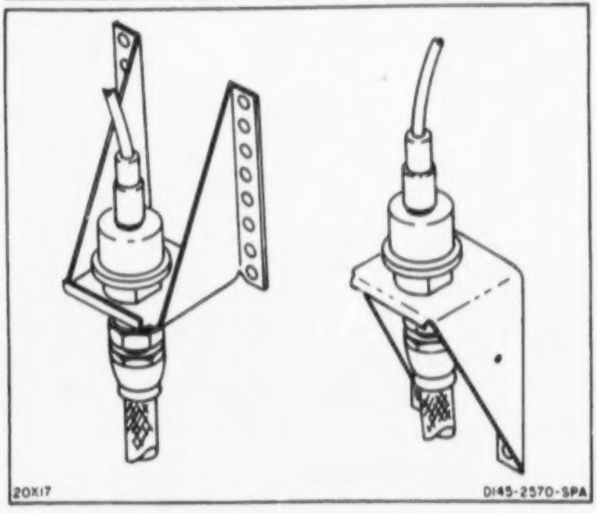
NOTE

There are four auxiliary fuel pump pressure switches in fuel system. Procedure is same for installing any pressure switch.

1. Remove cap and plug from pressure switch (1) and hose (2).
2. **Position pressure switch (1)** on bracket (3).
3. **Install** washer (4) and **nut (5)** on pressure switch (1).
4. **Connect hose (2).**
5. **Connect electrical connector (6).**

INSPECT


6
LEFT AFT, RIGHT FORWARD AND RIGHT AFT INTERTANK AREA
1
3
6
1
4
5
3
2
4
5
2
LEFT FORWARD INTERTANK AREA
20X34
D145-2569-SPA


20X17
D145-2570-SPA

FOLLOW-ON MAINTENANCE:

Perform operational check of fuel system (TM 55-1520-240-T).

Perform test of fuel feed system (Task 10-120).

Close aft intertank panel (Task 2-188).

Close forward landing gear access door (Task 2-2).

END OF TASK

10-87 REMOVE PRESSURE REFUELING ADAPTER 10-87

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Strap Wrench

Materials:
Cloths (E135)

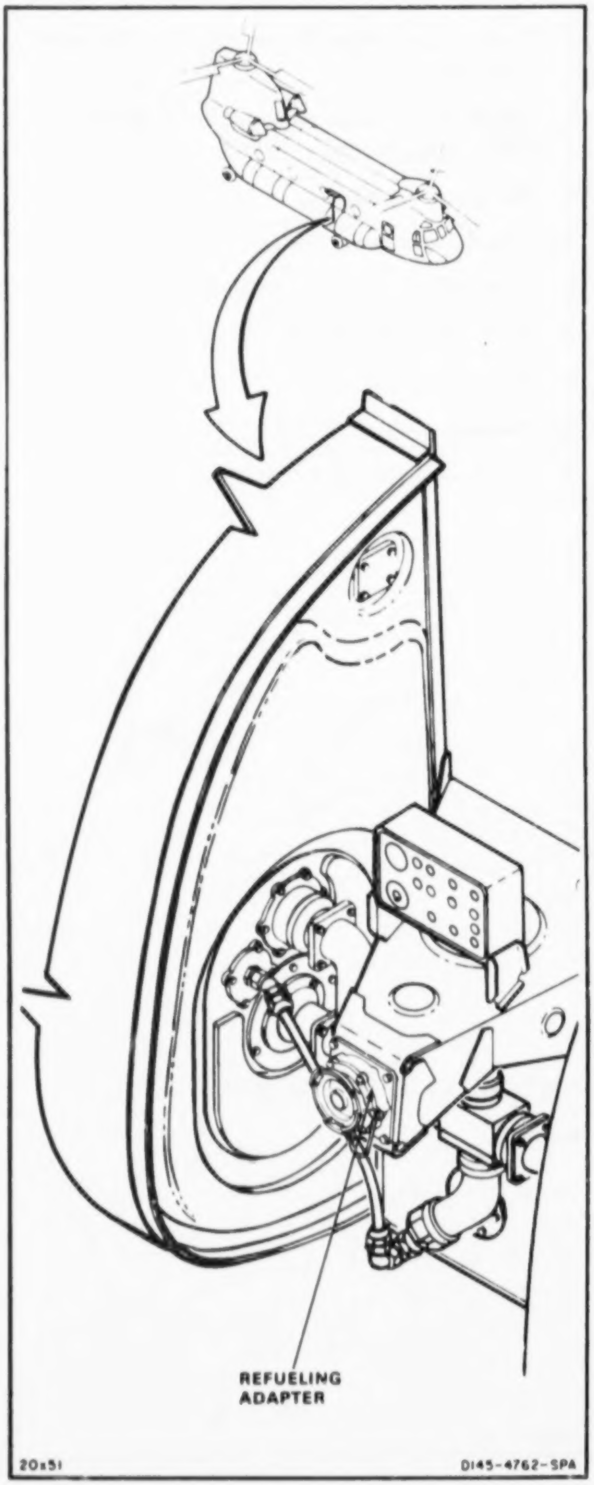
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnect (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Right Landing Gear Access Panel Removed (Task 2-180)
Grounded Container, 14 Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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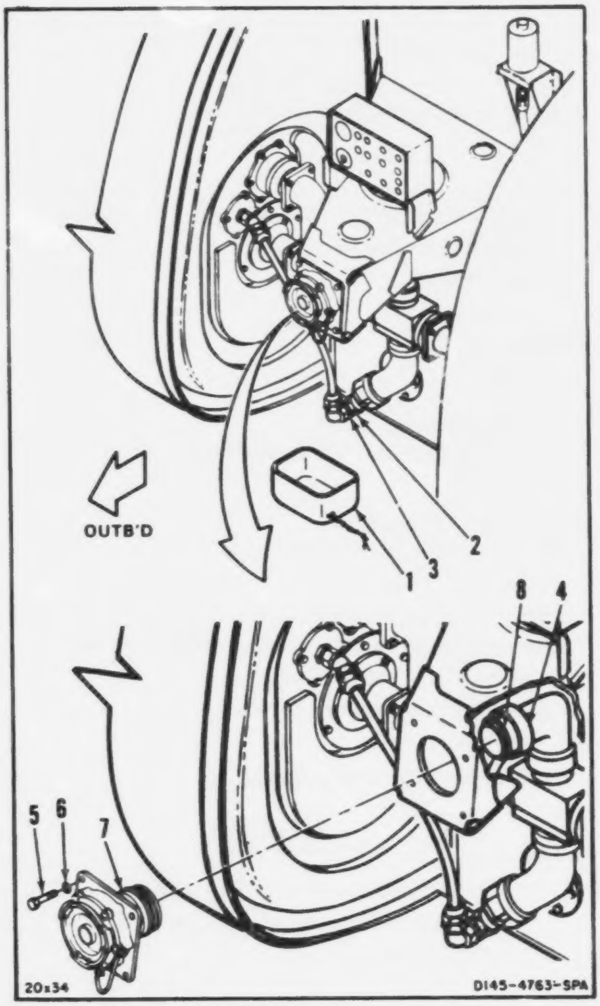
10-87 REMOVE PRESSURE REFUELING ADAPTER (Continued) 10-87

1. Position grounded container (1) under drain fitting (2).
2. **Disconnect hose elbow (3). Collect** spilled **fuel** in container (1).
3. **Connect elbow (3).**
4. **Disconnect ring nut (4).**
5. **Remove four bolts (5)** and washers (6).
6. **Remove adapter (7).**
7. Remove packing (8).
8. Wipe up any spilled fuel. Use cloths (E135).
9. Remove container (1).


OUTB'D
1
2
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8
4
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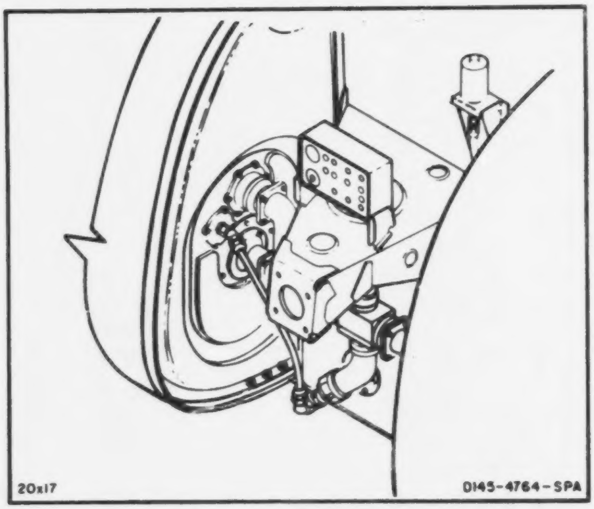
7
20x34
D145-4763-SPA

FOLLOW-ON MAINTENANCE:

None


20x17
D145-4764-SPA

END OF TASK

10-87.1 DISASSEMBLE PRESSURE REFUELING ADAPTER (2650266) 10-87.1

INITIAL SETUP

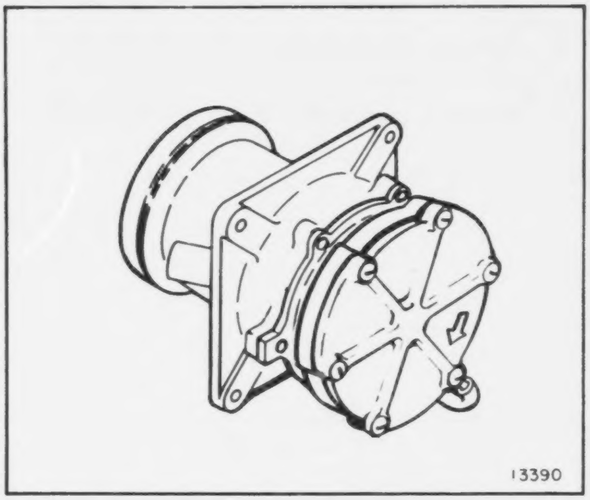
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit
NSN 5180-00-323-4692

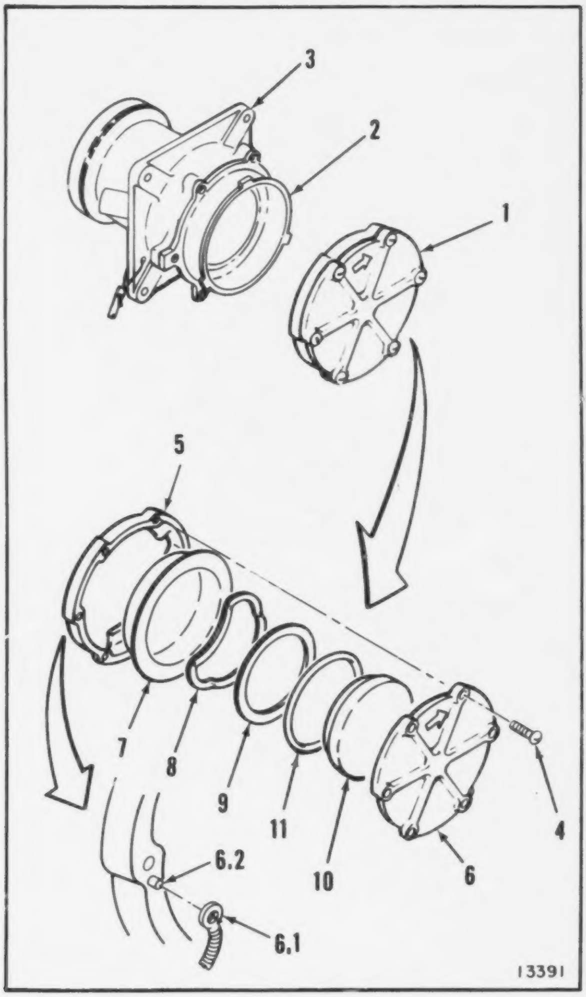
Materials:
None

Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Off Helicopter Task



1. **Remove cap assembly (1)** from adapter (2) and body (3) by pushing down cap while turning counterclockwise.
2. **Remove six screws (4) and ring (5)** from cover (6). Remove chain (6.1) from pin (6.2).
3. **Remove poppet assembly (7), wave washer (8), flat washer (9), and backup (10)** from cover (6).
4. **Remove packing (11)** from backup (10).



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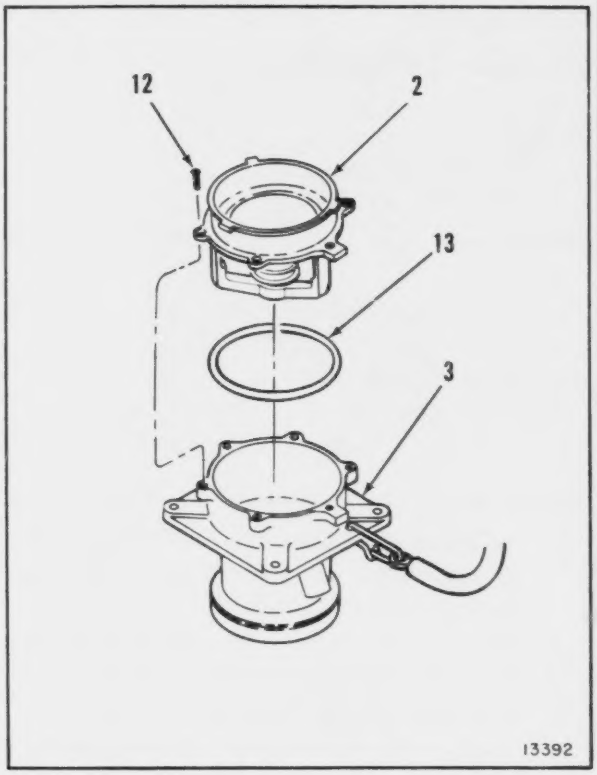
10-87.1 DISASSEMBLE PRESSURE REFUELING ADAPTER (2650266) (Continued) 10-87.1

5. **Remove six screws (12) and adapter (2)** from body (3).
6. **Remove packing** (13) from adapter (2).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-87.2 ASSEMBLE PRESSURE REFUELING ADAPTER (2650266) 10-87.2

INITIAL SETUP

Applicable Configurations:
All

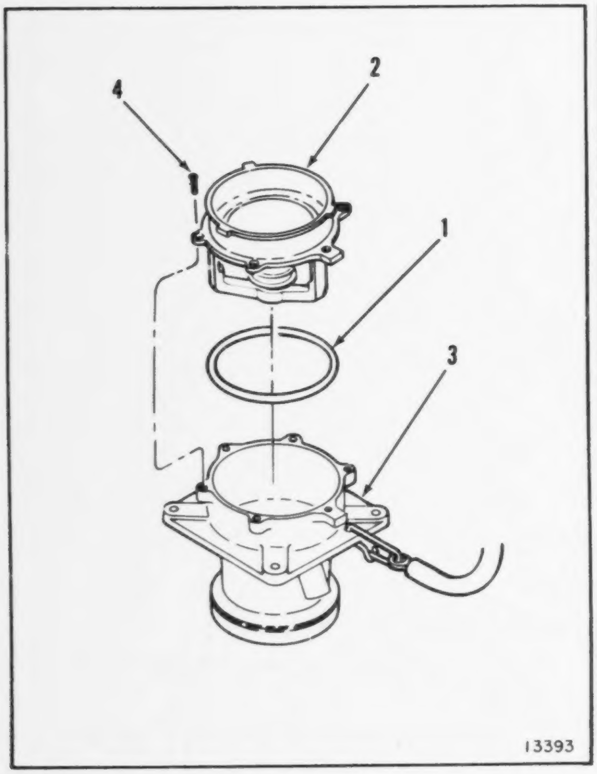
Tools:
Aircraft Mechanic's Tool Kit
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Off Helicopter Task

1. **Install packing (1)** on adapter (2).
2. Line up square tabs and **install adapter (2)** in body (3) **using six screws (4).**



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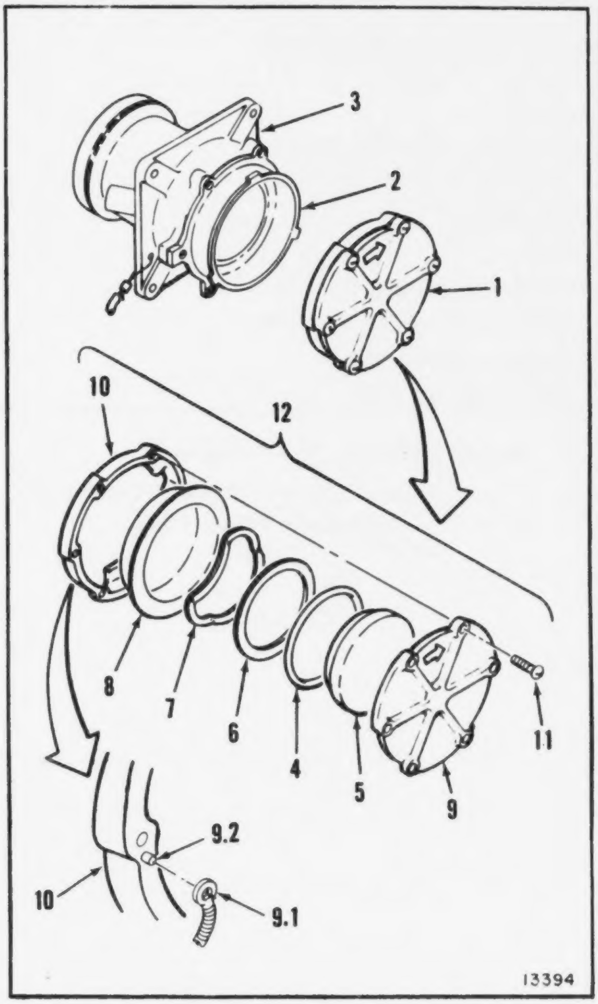
10-87.2 ASSEMBLE PRESSURE REFUELING ADAPTER (2650266) (Continued) 10-87.2

3. **Install packing (4)** on backup (5).
4. **Install backup (5), flat washer (6), wave washer (7) and poppet assembly (8)** in cover (9).
5. Install chain (9.1) on pin (9.2) of ring (10).
6. Align hole in cover (9) with pin (9.2). Install cover on ring (10) with six screws (11).
7. **Install cover assembly (12)** in adapter (2) and body (2). Turn cover clockwise to lock.



FOLLOW-ON MAINTENANCE:

Install pressure refueling adapter (Task 10-88).

Perform single point refueling (Task 1-51).

END OF TASK

10-88 INSTALL PRESSURE REFUELING ADAPTER 10-88

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Strap wrench

Materials:
Petrolatum (E274)

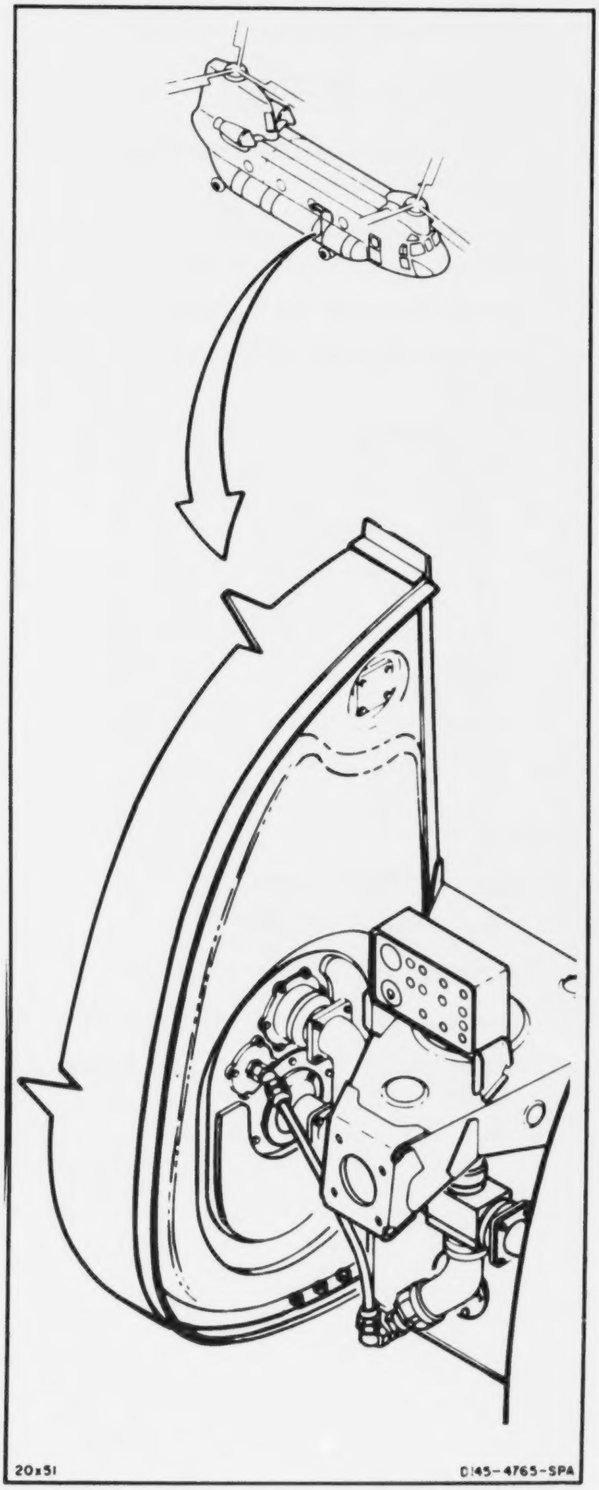
Parts:
Packing

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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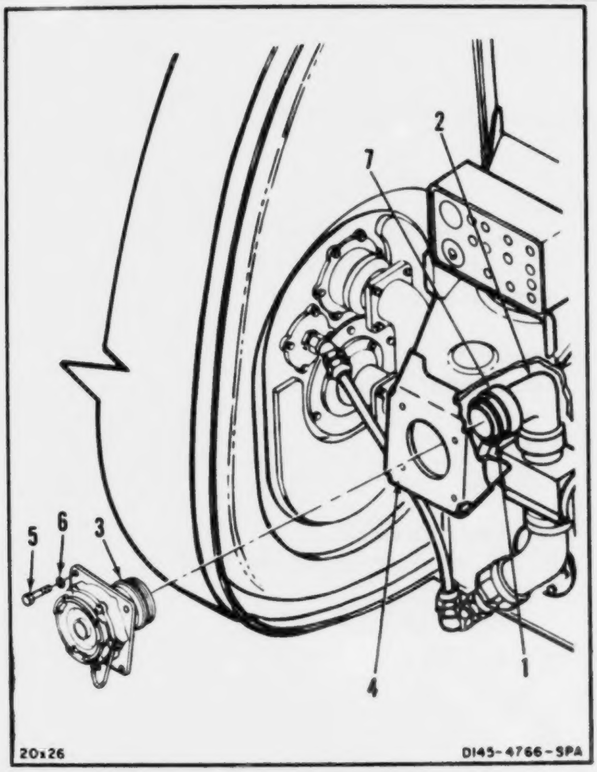
10-88 INSTALL PRESSURE REFUELING ADAPTER (Continued) 10-88

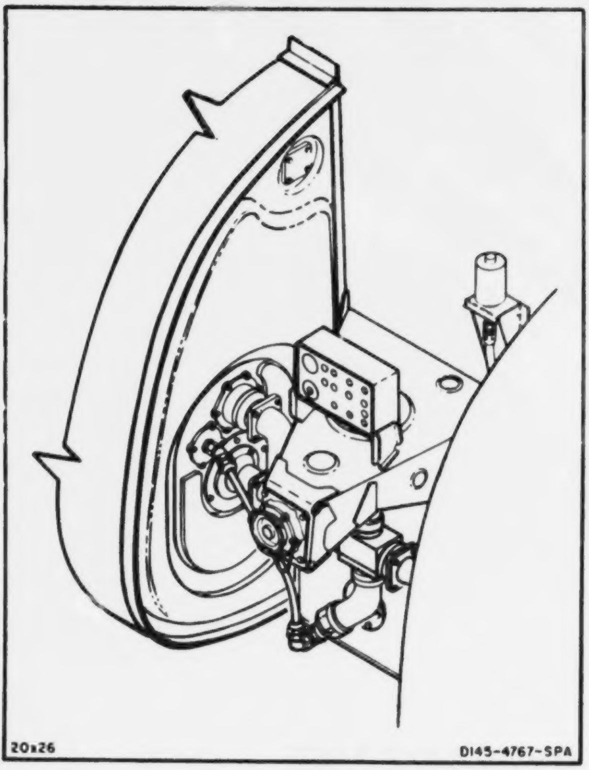
1. Lubricate packing (1). Use petrolatum (E274). Install packing on elbow (2).

CAUTION

Do not damage packing when installing adapter.

2. **Install adapter (3)** through support bracket (4) and over elbow (2) and packing (1).
3. **Install four bolts (5)** and washers (6).
4. **Connect ring nut (7)** to adapter (3). Tighten ring nut.





INSPECT

FOLLOW-ON MAINTENANCE:

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Check refueling adapter for leaks (Task 10-4).

Install forward right landing gear access panel (Task 2-181).

END OF TASK

10-89 REMOVE NO. 1 SYSTEM (LEFT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE 10-89

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Cloths (E135)
Barrier Material (E80)
Tape (E388)

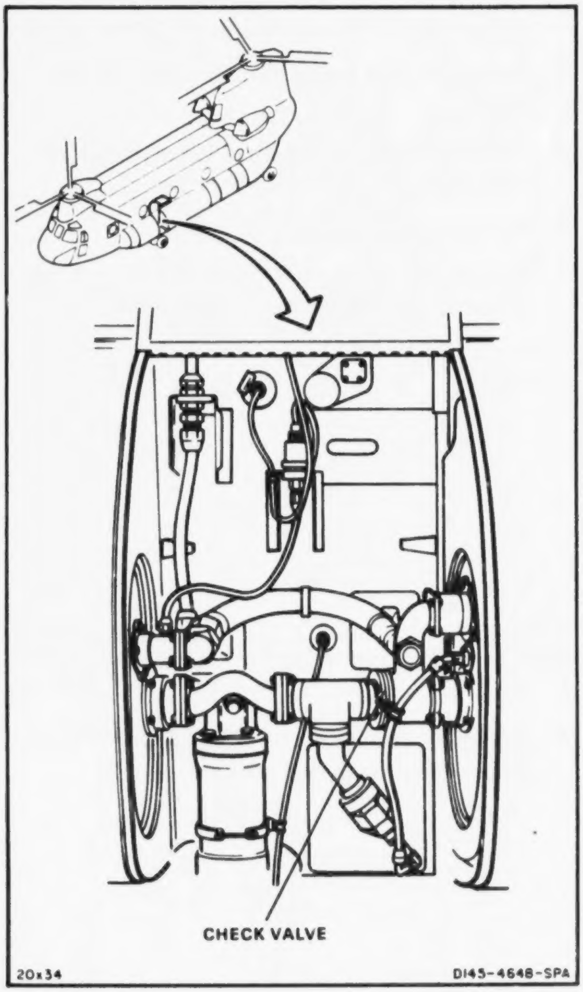
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Left Landing Gear Access Door Opened (Task 2-2)
All tanks on left side of helicopter defueled and both crossover valves closed (Task 10-34 or 10-35)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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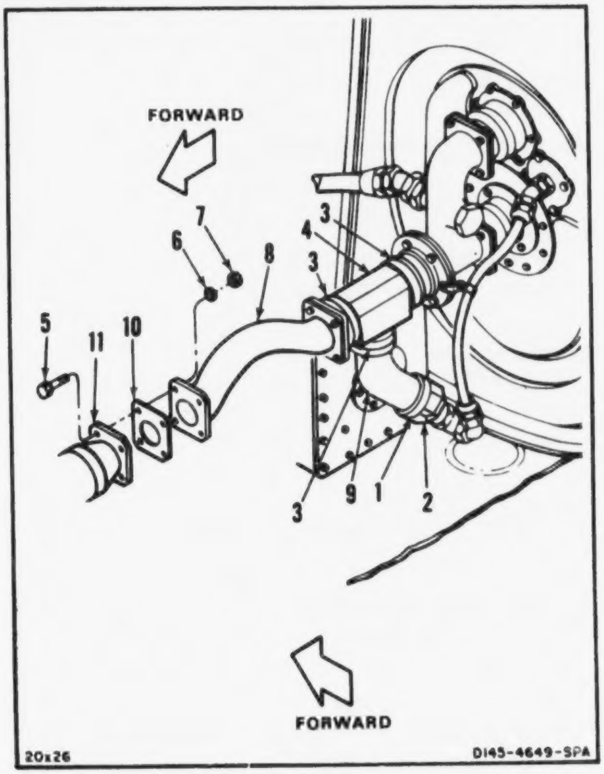
10-89 REMOVE NO. 1 SYSTEM (LEFT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE (Continued)

1. Remove lockwire and **loosen ring nut (1)** on elbow (2) and **three ring nuts (3)** on tee (4).
2. **Remove four bolts (5),** washers (6) and nuts (7).
3. **Remove tube (8), elbow (9) and tee (4).** Use container for any spilled fuel.
4. Remove gasket (10).
5. Cover holes in elbow (2) and fitting (11). Use barrier material (E80) and tape (E388).


FORWARD
7
6
8
3
4
3
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11
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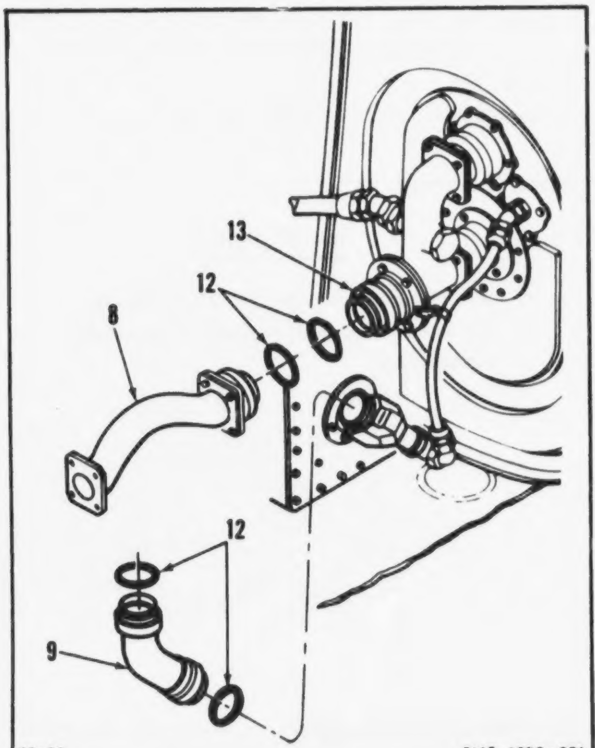
3
9
1
2
FORWARD
20x26
D145-4649-SPA

6. Remove four packings (12) from tube (8), elbow (9) and flanged connector (13).


13
12
8
12
9
20x26
D145-4650-SPA

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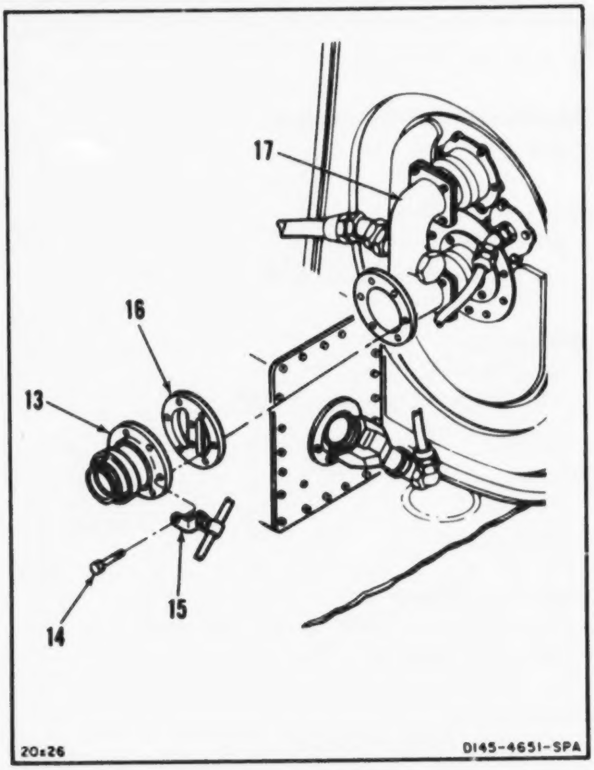
10-89 REMOVE NO. 1 SYSTEM (LEFT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE (Continued) 10-89

7. **Remove six screws (14).**
8. **Remove support plate (15), flanged connector (13) and check valve (16)** from manifold (17).
9. Clean up any spilled fuel. Use cloths (E135).
10. Cover hole in manifold (17). Use barrier material (E80) and tape (E388).


17
16
13
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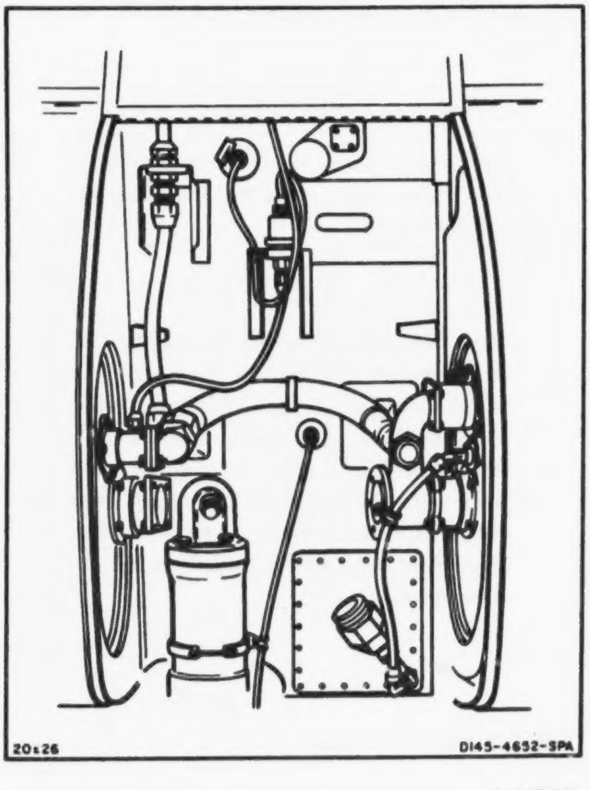
D145-4651-SPA


20:26
D145-4652-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-90 INSTALL NO. 1 SYSTEM (LEFT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE 10-90

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Lockwire (E233)
Dry Cleaning Solvent (E162)
Gloves (E186)

Parts:
Packings
Gaskets

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

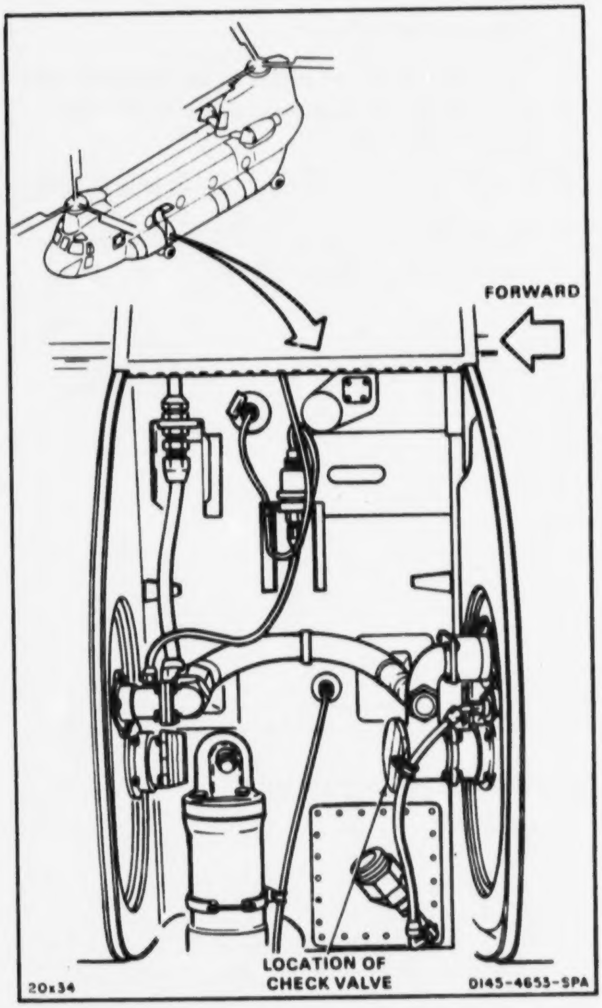
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



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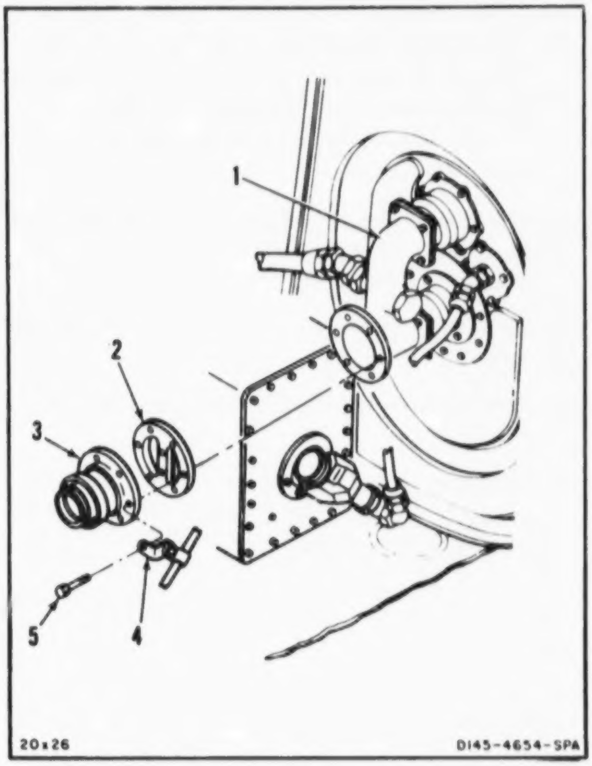
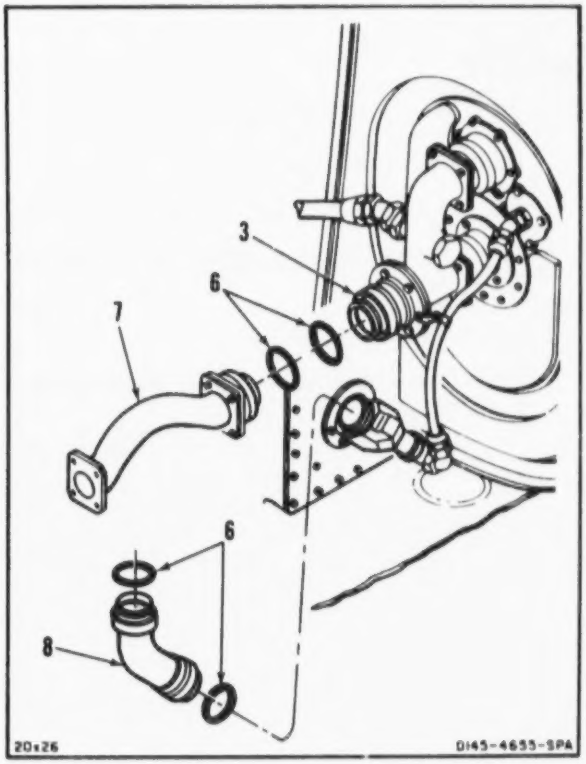
10-90 INSTALL NO. 1 SYSTEM (LEFT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE (Continued) 10-90

1. Remove barrier material and masking tape from manifold (1). Clean any tape residue from face of flange. Use dry cleaning solvent (E162) and cloths (E135). Use goggles for eyes. Wear gloves (E186).
2. **Position check valve (2), flanged connector (3) and support plate (4)** on manifold (1).
3. **Install six screws (5).**



20x26 D145-4654-SPA

4. Install four packings (6), one on flanged connector (3), one on tube (7) and two on elbow (8).



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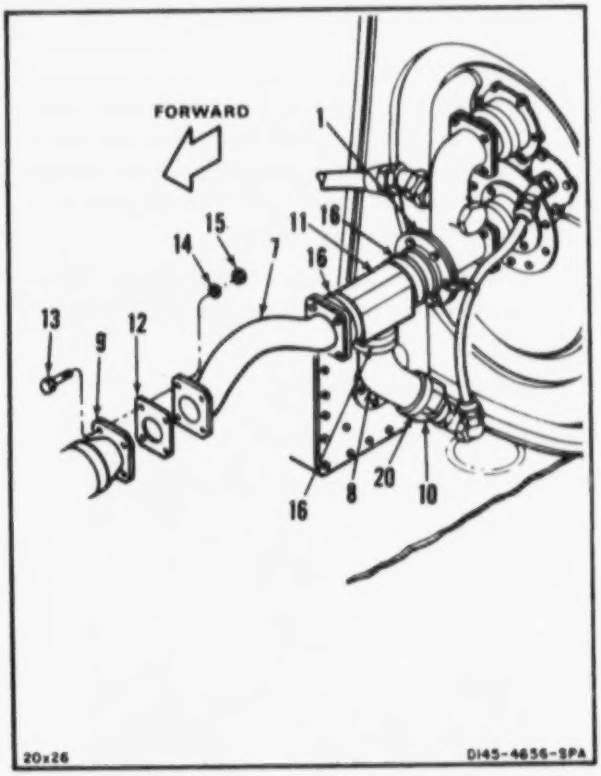
10-90 INSTALL NO. 1 SYSTEM (LEFT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE (Continued) 10-90

5. Remove barrier material and tape covering holes in fittings (9 and 10). Clean any residual tape adhesive. Use dry cleaning solvent (E162) and cloths (E135). Use goggles for eyes. Wear gloves (E186).
6. **Position tube (7), elbow (8), and tee (11),** between manifold (1), fitting (10), and breakaway fitting (9).
7. Position gasket (12) between tube (7) and fitting (9).
8. **Install four bolts (13),** washers (14), and nuts (15).
9. **Tighten three rings nuts (16)** on tee (11). Tighten ring nut (17) on elbow (8). Lockwire ring nuts. Use lockwire (E233).



INSPECT

FOLLOW-ON MAINTENANCE:

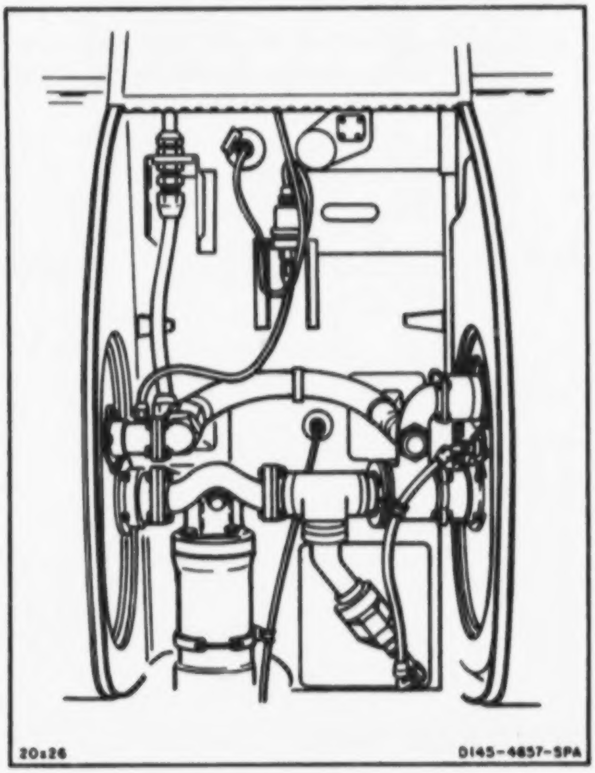
Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (TM 55-2840-240-T).

Check for leaks (Task 10-4).

Close forward left landing gear access panel (Task 2-2).



END OF TASK

10-91 REMOVE NO. 2 SYSTEM (RIGHT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE 10-91

INITIAL SETUP

Applicable Configurations:
All

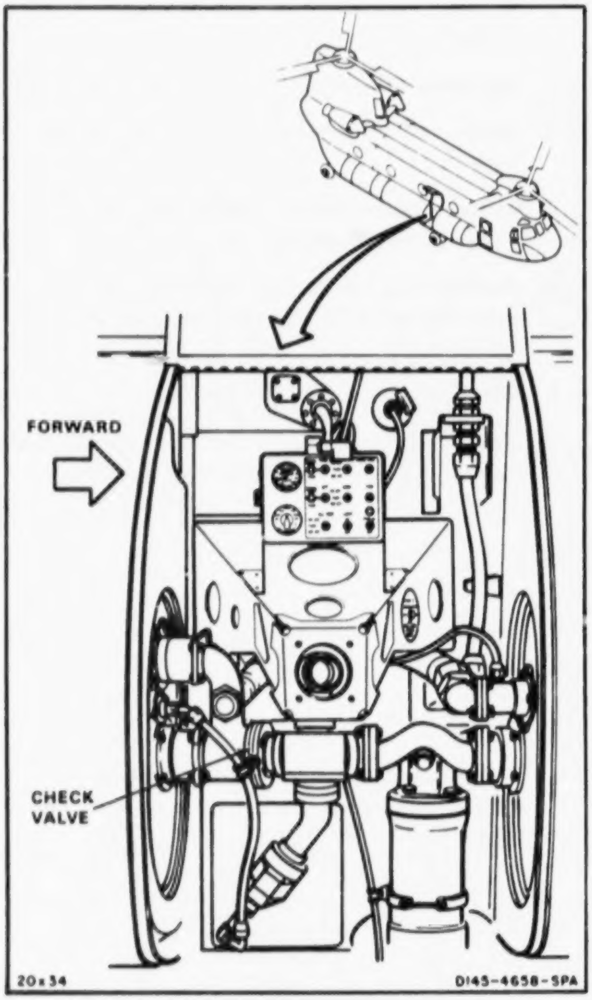
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Strap Wrench

Materials:
Cloths (E135)
Barrier Material (E80)
Tape (E388)

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Forward Right Landing Gear Access Door Opened (Task 2-2).
All tanks on right side of helicopter defueled and both crossover valves closed (Task 10-34 or 10-35)
Remove Refueling Adapter (Task 10-87)
Grounded Container, Two Quart

General Safety Instructions:



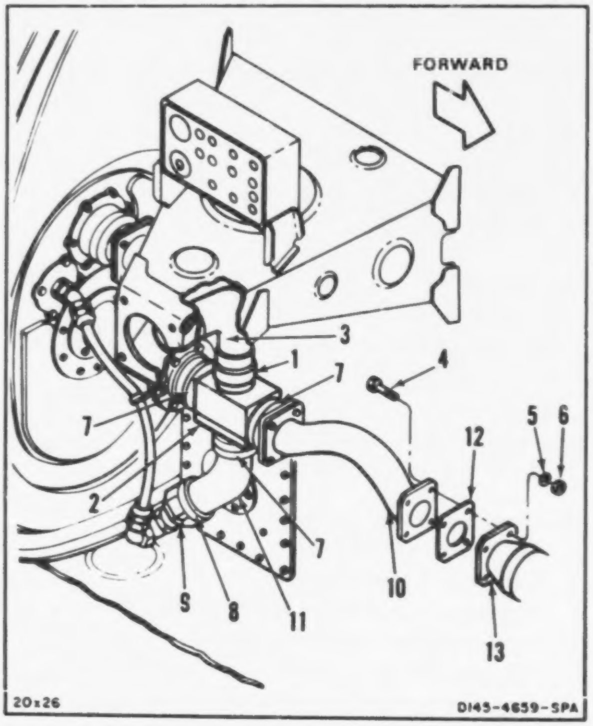
WARNING

All regulations and instructions for handling fuels shall be strictly observed.

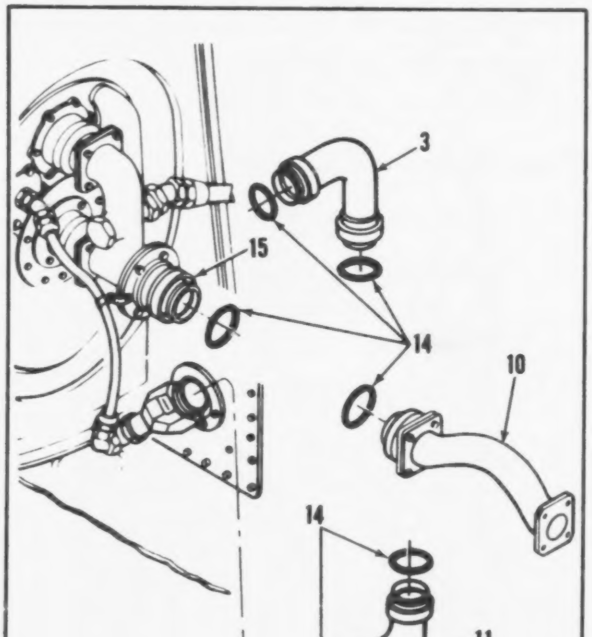
GO TO NEXT PAGE

10-91 REMOVE NO. 2 SYSTEM (RIGHT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE (Continued) 10-91

1. Remove lockwire and **loosen ring nut (1)** on cross (2).
2. **Remove elbow (3).**
3. **Remove four bolts (4),** washers (5), and nuts (6).
4. **Loosen three ring nuts (7)** on cross (2) and **ring nut (8)** on elbow (9).
5. **Remove cross (2), tube assembly (10) and elbow (11).** Use container for any spilled fuel.
6. Remove gasket (12).
7. Cover holes in elbow (9) and fitting (13). Use barrier material (E80) and tape (E388).


FORWARD
3
1
4
7
7
12
5
6
2
7
10
9
8
11
13
20x26
D145-4659-SPA

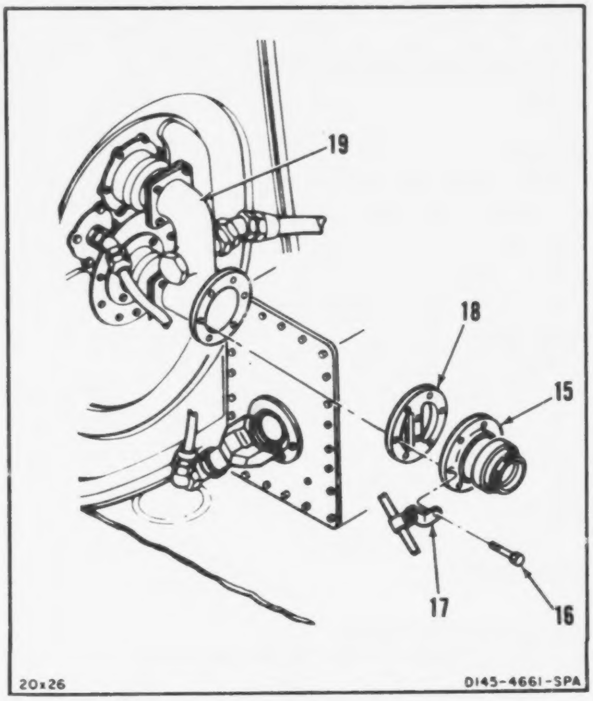
8. Remove six packings (14) from elbow (3), tube (10), elbow (11), and flanged connector (15).


3
15
14
10
14
11
20x26
D145-4660-SPA

GO TO NEXT PAGE

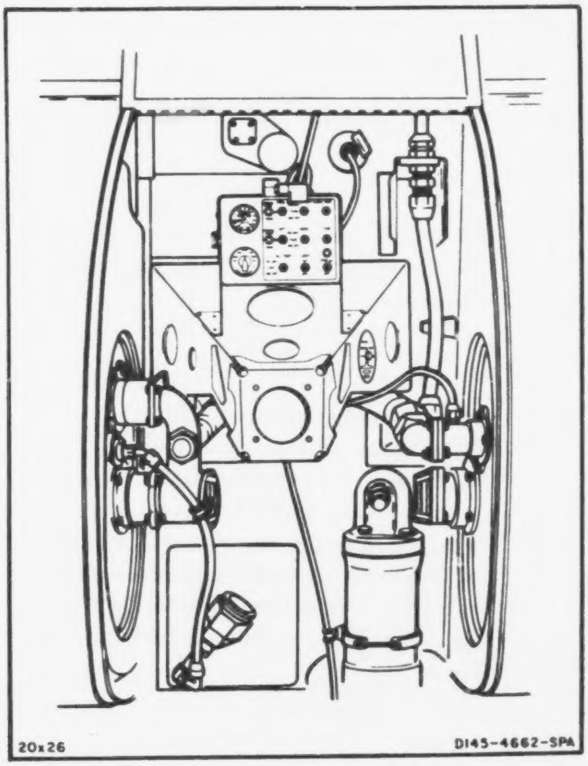
10-91 REMOVE NO. 2 SYSTEM (RIGHT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE (Continued) 10-91

9. Remove six screws (16).
10. **Remove support plate (17), flanged connector (15)** and **check valve (18)** from manifold (19).
11. Clean up any spilled fuel. Use cloths (E135).
12. Cover hole in manifold (19). Use barrier material (E80) and tape (E388).


19
18
15
17
16
20x26
D145-4661-SPA

FOLLOW-ON MAINTENANCE:

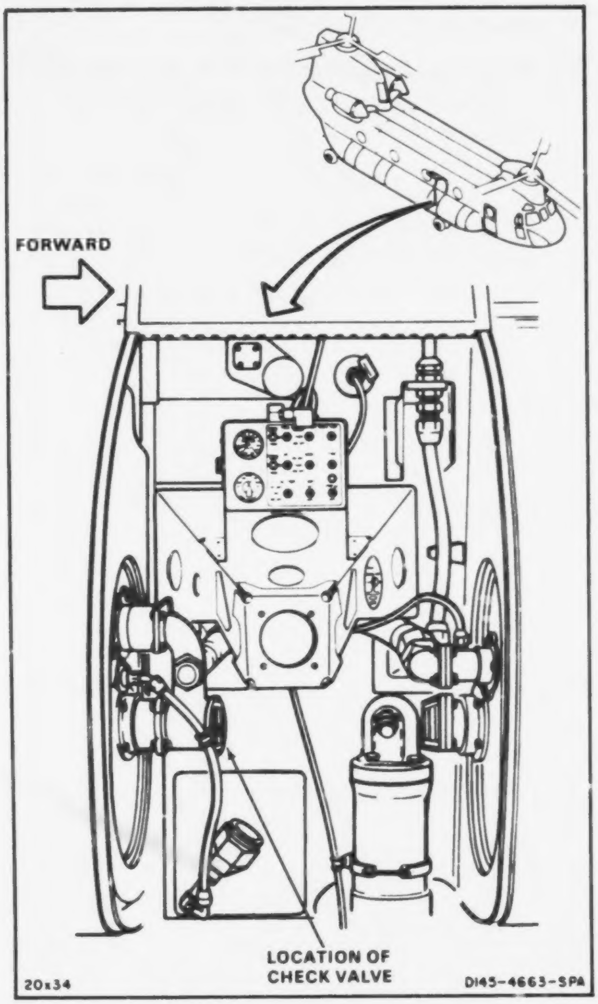
None


20x26
D145-4662-SPA

END OF TASK

10-92 INSTALL NO. 2 SYSTEM (RIGHT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE 10-92

INITIAL SETUP



Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Strap Wrench

Materials:
Lockwire (E233)
Dry Cleaning Solvent (E162)
Gloves (E186)
Cloths (E135)

Parts:
Packings
Gaskets

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

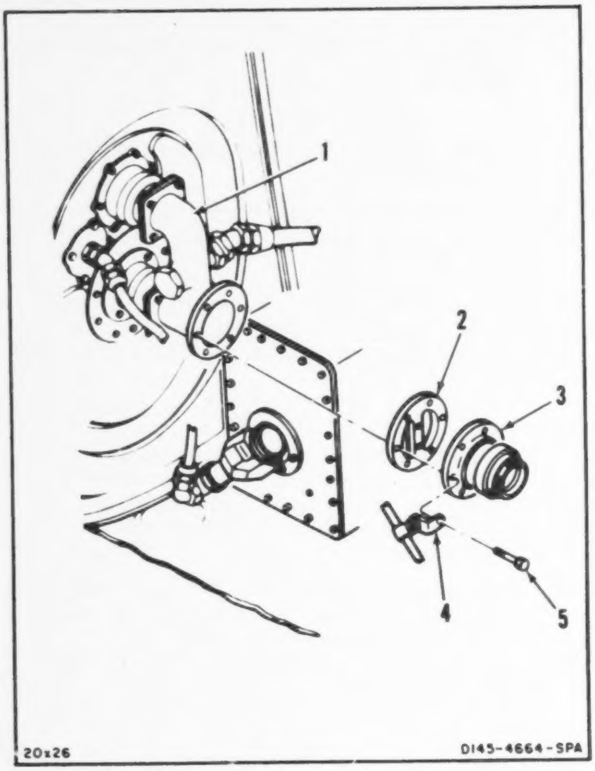
WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

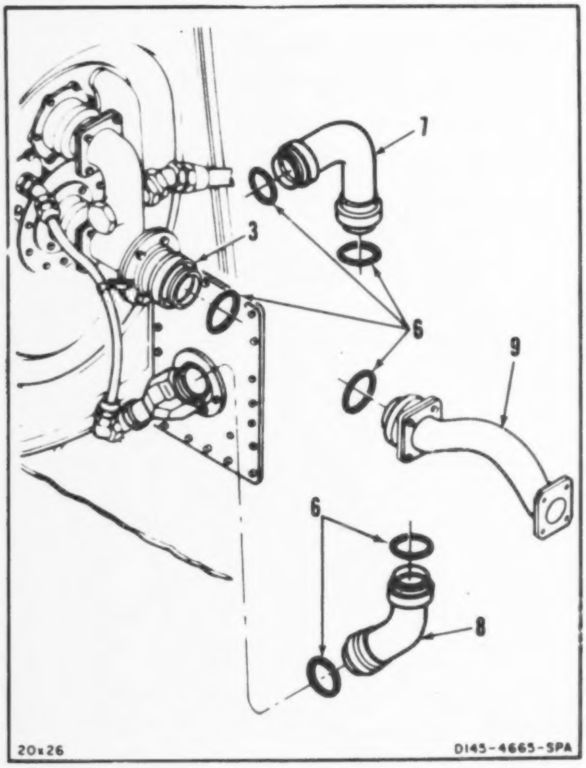
GO TO NEXT PAGE

10-92 INSTALL NO. 2 SYSTEM (RIGHT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE (Continued) 10-92

1. Remove barrier material and tape from manifold (1). Clean any tape residue from face of flange. Use dry cleaning solvent (E162) and cloths (E135). Use goggles for eyes. Wear gloves (E186).
2. **Position check valve (2), flanged connector (3) and support plate (4)** on manifold (1).
3. **Install six screws (5).**



4. Install six packings (6), two on elbow (7), two on elbow (8), one on tube (9) and one on flanged connector (3).



GO TO NEXT PAGE

10-92 INSTALL NO. 2 SYSTEM (RIGHT SIDE) MAIN FUEL TANK SERVICING CHECK VALVE (Continued) 10-92

5. Remove barrier material and tape from two fittings (10 and 11). Clean any tape residue. Use dry cleaning solvent (E162) and cloths (E135). Use goggles for eyes. Wear gloves (E186).

CAUTION

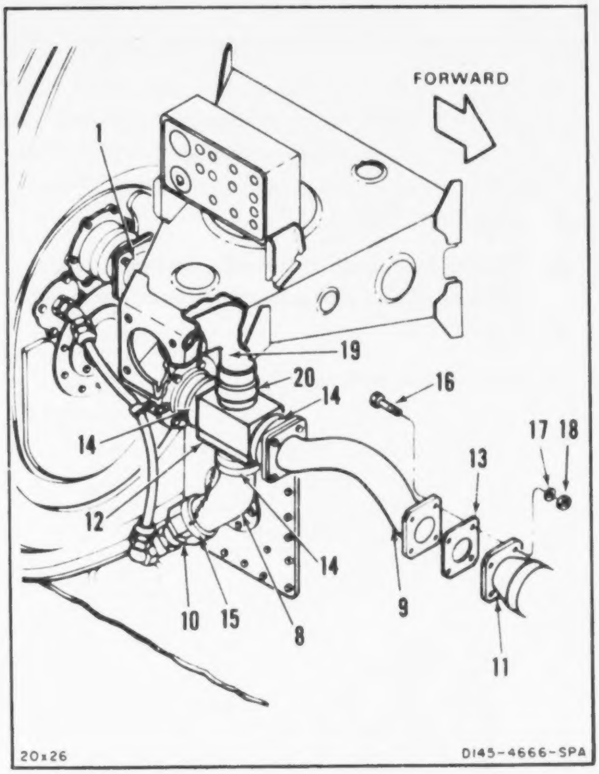
Do not damage packings during assembly.

6. **Position elbow (8), cross (12), and tube (9)** between manifold (1) and two fittings (10 and 11).
7. Position gasket (13).
8. **Tighten three ring nuts (14)** on cross (12). **Tighten ring nut (15)** on fitting (10).
9. **Install four bolts (16)**, washers (17), and nuts (18).

CAUTION

Elbow must be positioned with flow direction arrow inboard and down. Structural damage can occur if elbow installation is incorrect.

10. **Position elbow (19)** with flow direction arrow pointed inboard and down into cross (12). **Tighten ring nut (20).**
11. Lockwire four ring nuts (14 and 15). Use lockwire (E233).



INSPECT

FOLLOW-ON MAINTENANCE:

Install refueling adapter (Task 10-88).

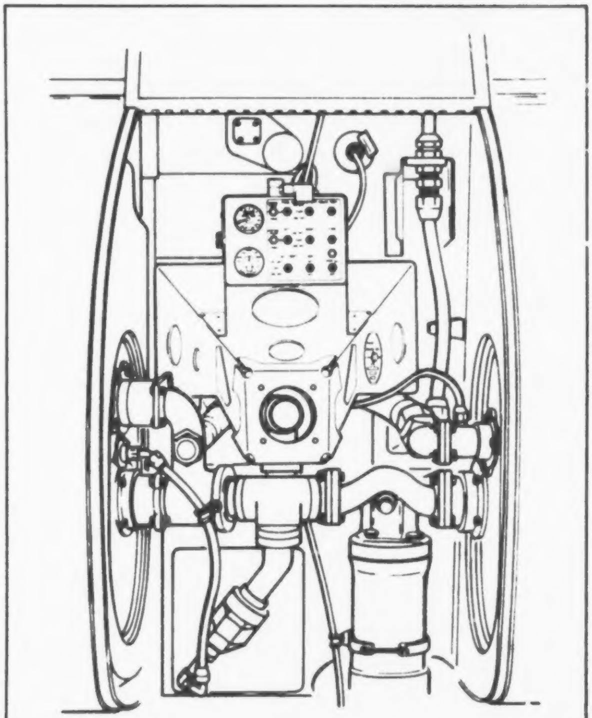
Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (TM 55-1520-240-T).

Check for leaks (Task 10-4).

Close forward right landing gear access panel (Task 2-2).



END OF TASK

10-93 REMOVE FUEL SYSTEM DRAIN VALVE 10-93

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloths (E135)

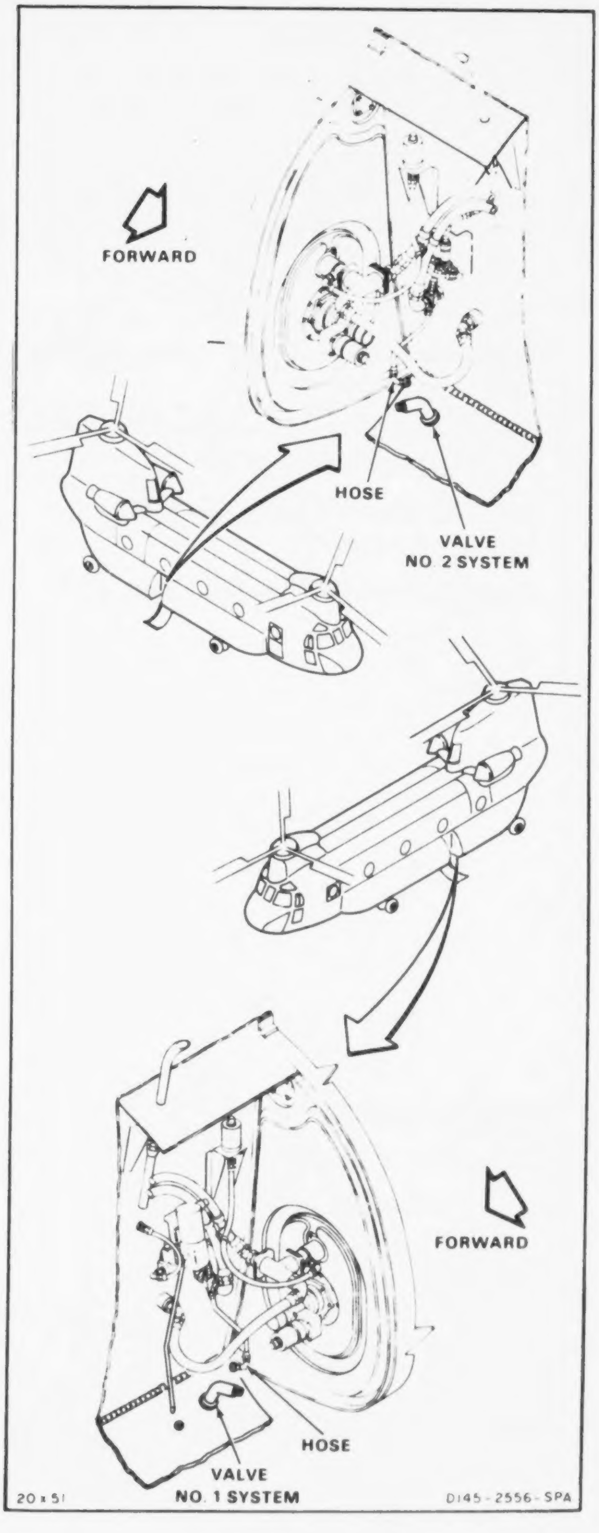
Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Aft Intertank Access Door Opened (Task 2-185)
All Tanks on Affected Side of Aircraft Defueled and Both Crossover Valves Closed (Task 10-34 or 10-35)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

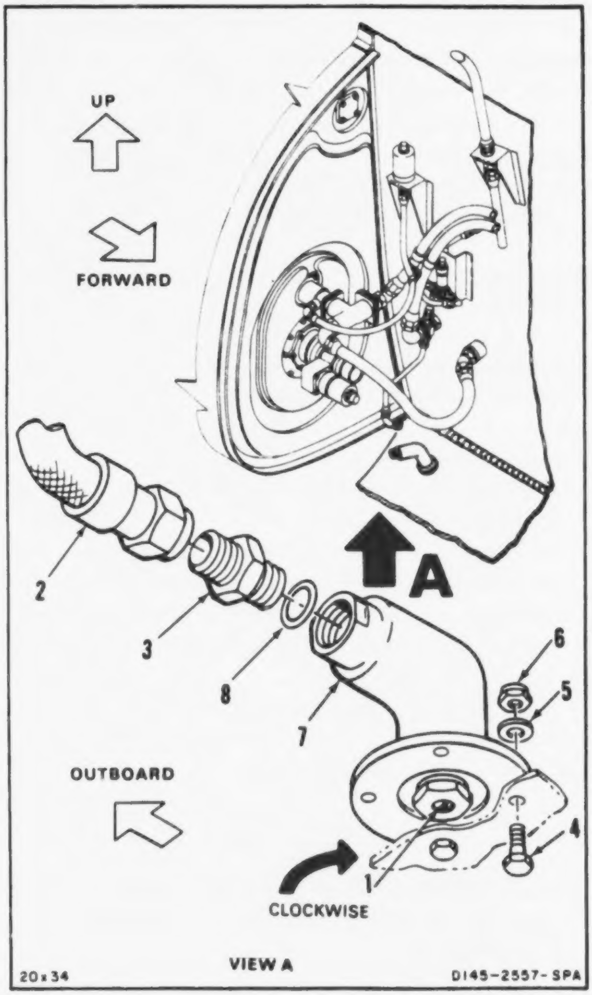

FORWARD
HOSE
VALVE
NO. 2 SYSTEM
FORWARD
HOSE
VALVE
NO. 1 SYSTEM
20 x 51
D145-2556-SPA

10-93 REMOVE FUEL SYSTEM DRAIN VALVE (Continued) 10-93

NOTE

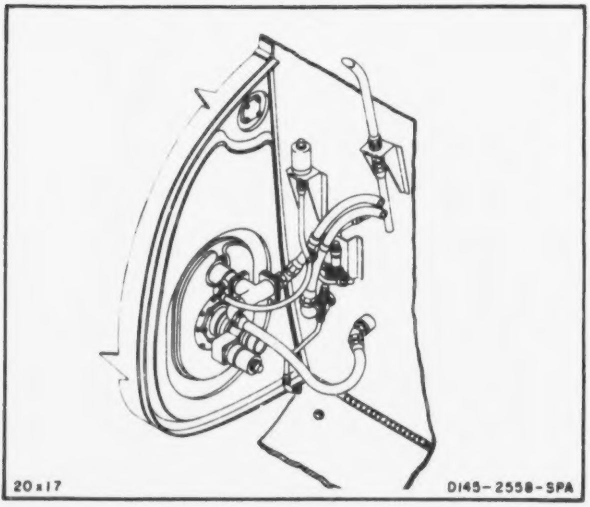
Procedure is same to remove No. 1 or No. 2 system drain valve. No. 2 drain valve is shown here.

1. Turn poppet cock (1) 1/4-turn clockwise, push up, and hold. Allow fuel to drain. Use container for fuel.
2. Release poppet cock (1).
3. **Disconnect hose (2)** from nipple (3). Plug hose.
4. Remove four bolts (4), washers (5), and nuts (6). **Remove drain valve (7).**
5. **Remove union (3)** and packing (8) from valve (7). Plug valve.
6. Clean up any spilled fuel. Use cloths (E135).


UP
FORWARD
A
2
3
8
7
6
5
4
1
OUTBOARD
CLOCKWISE
VIEW A
20x34
D145-2557-SPA

FOLLOW-ON MAINTENANCE:

None


20x17
D145-2558-SPA

END OF TASK

10-93.1 REPAIR FUEL SYSTEM DRAIN VALVE (AVIM) 10-93.1

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloths (E135)

Parts:
Packing

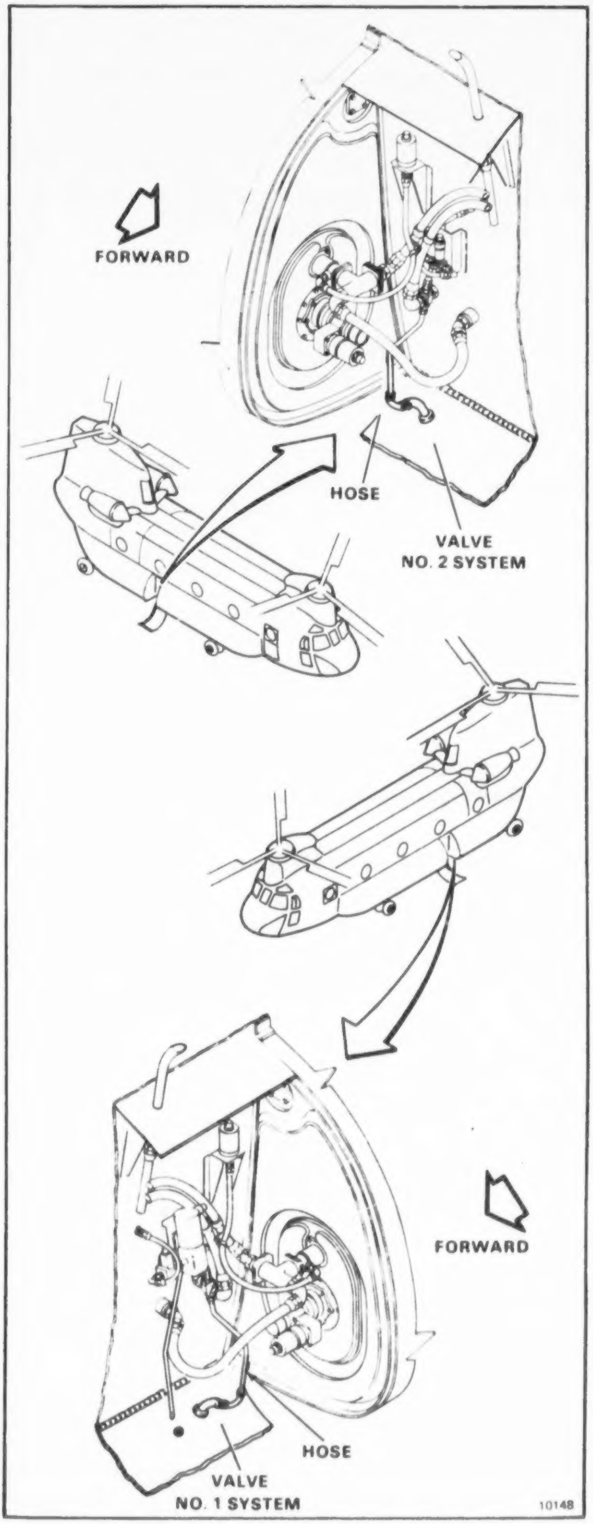
Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Aft Intertank Access Door Opened (Task 2-185)
All Tanks on Affected Side of Aircraft Defueled and Both Crossover Valves Closed (Task 10-34 or 10-35)
Two Quart Grounded Container

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



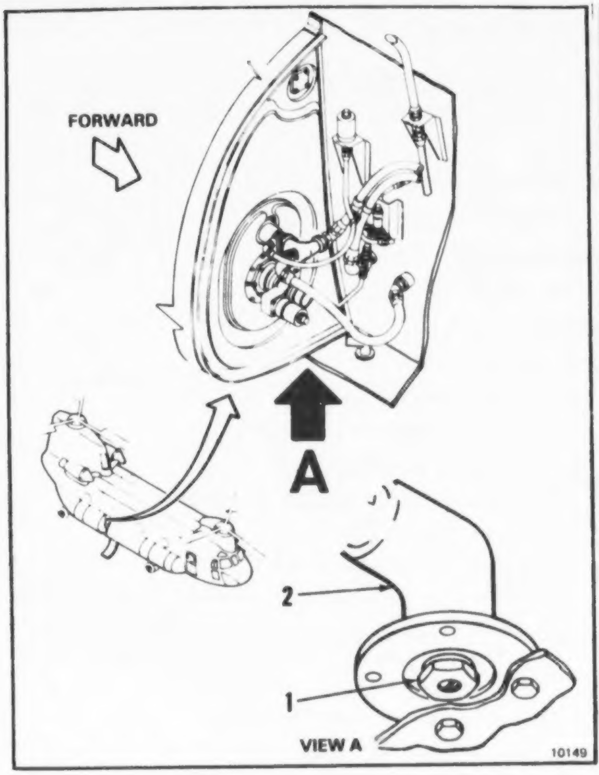
GO TO NEXT PAGE

10-93.1 REPAIR FUEL SYSTEM DRAIN VALVE (AVIM) (Continued) 10-93.1

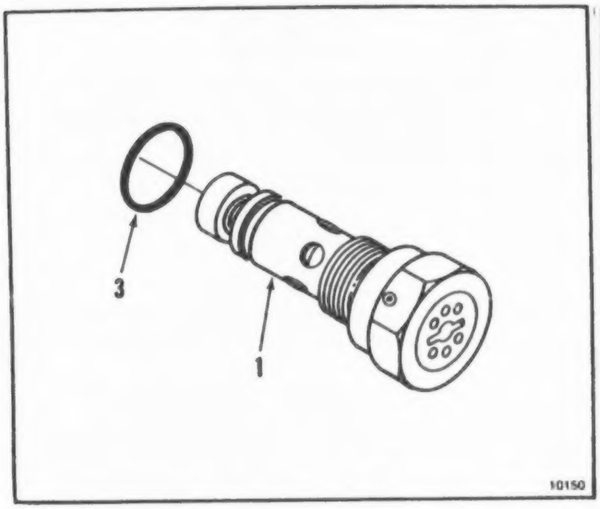
NOTE

Procedure is same to repair No. 1 or No. 2 system drain valve. No. 2 drain valve is shown here.

1. Unscrew and **remove poppet body (1)** from valve housing (2).



2. **Remove packing (3)** from poppet body (1).
3. Install new packing (3) on poppet body (1).

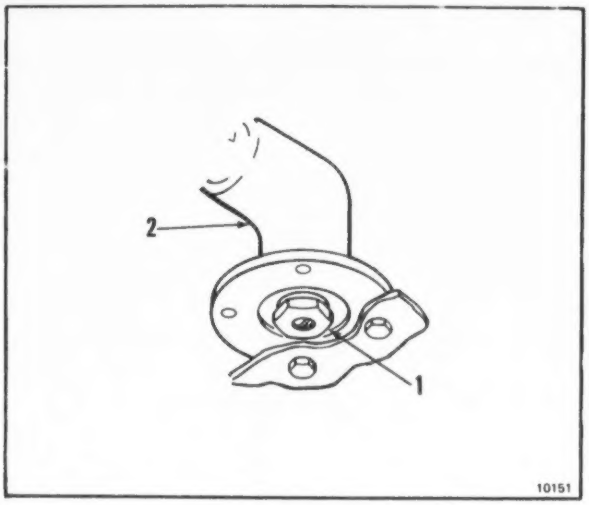


GO TO NEXT PAGE

10-93.1 REPAIR FUEL SYSTEM DRAIN VALVE (AVIM) (Continued) 10-93.1

4. **Install poppet body (1) in valve housing (2).**

INSPECT



FOLLOW-ON MAINTENANCE:

Refuel aircraft (Task 1-51).

Bleed fuel system (Task No. 10-121).

Perform test of fuel feed system (Task 10-120).

Check for leaks (Task 10-4).

Close aft intertank acess door (2-188).

END OF TASK

10-94 INSTALL FUEL SYSTEM DRAIN VALVE 10-94

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Parts:
Packing

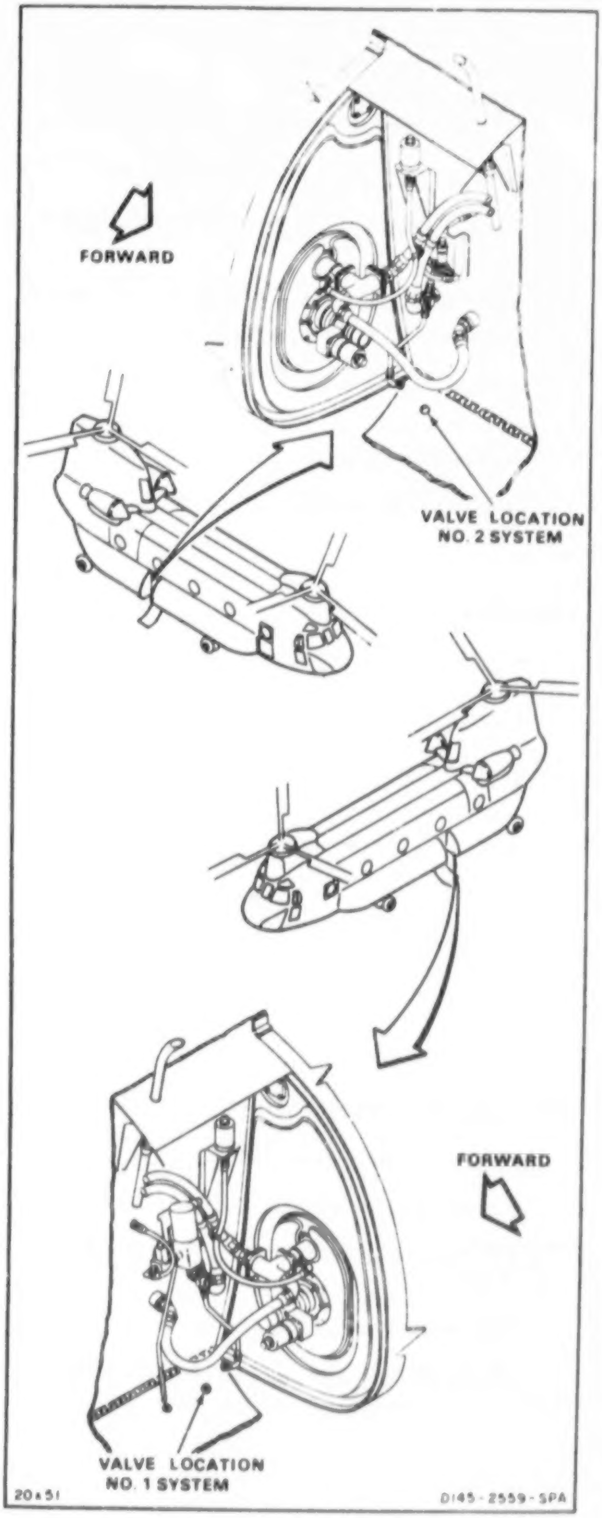
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
VALVE LOCATION NO. 2 SYSTEM
FORWARD
VALVE LOCATION NO. 1 SYSTEM
20x51
D145-2559-SPA

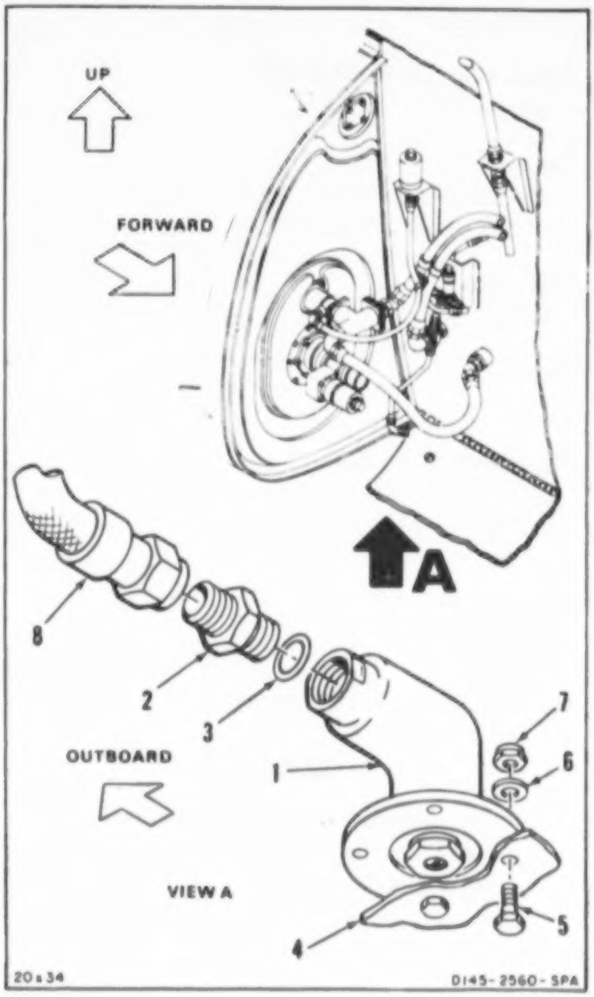
GO TO NEXT PAGE

10-94 INSTALL FUEL SYSTEM DRAIN VALVE (Continued) 10-94

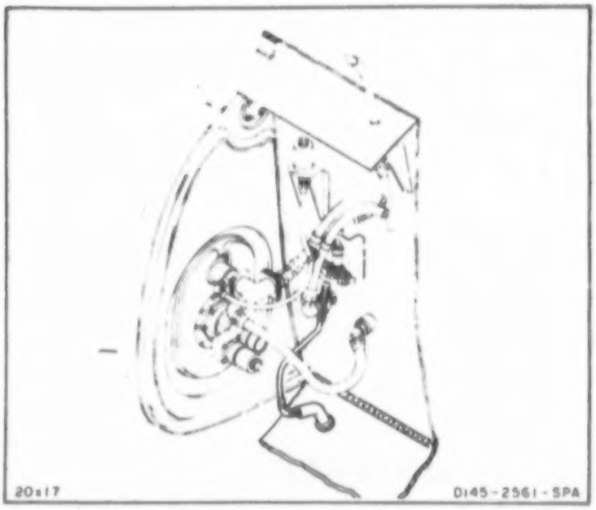
NOTE

Procedure is same to install No. 1 or No. 2 system drain valve. No. 2 drain valve is shown here.

1. Remove plug from drain valve (1).
2. **Install nipple (2)** and packing (3) in drain valve (1).
3. **Position drain valve (1)** on pod (4). Make sure valve (1) points outboard.
4. **Install four bolts (5),** washers (6), and nuts (7).
5. Remove plug from hose (8).
6. **Connect hose (8)** to nipple (2).


UP
FORWARD
A
8
2
3
1
7
6
5
4
OUTBOARD
VIEW A
20x34
D145-2560-SPA

INSPECT


20x17
D145-2561-SPA

FOLLOW-ON MAINTENANCE:

Refuel aircraft (Task 1-51).

Bleed fuel system (Task No. 10-121).

Perform test of fuel feed system (Task 10-120).

Check for leaks (Task 10-4).

Close aft intertank access door (2-188).

END OF TASK

10-95 REMOVE DUAL CHECK VALVE FITTING 10-95

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic Tool Kit, NSN 5180-00-323-4692

Wrench, Open End, 1-1/2

Materials:

Cloths (E135)

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Helicopter Grounded (Task 1-29)

Aft Intertank Access Door Opened (Task 2-185)

All tanks on affected side of helicopter defueled and both crossover valves closed (Task 10-34 or 10-35)

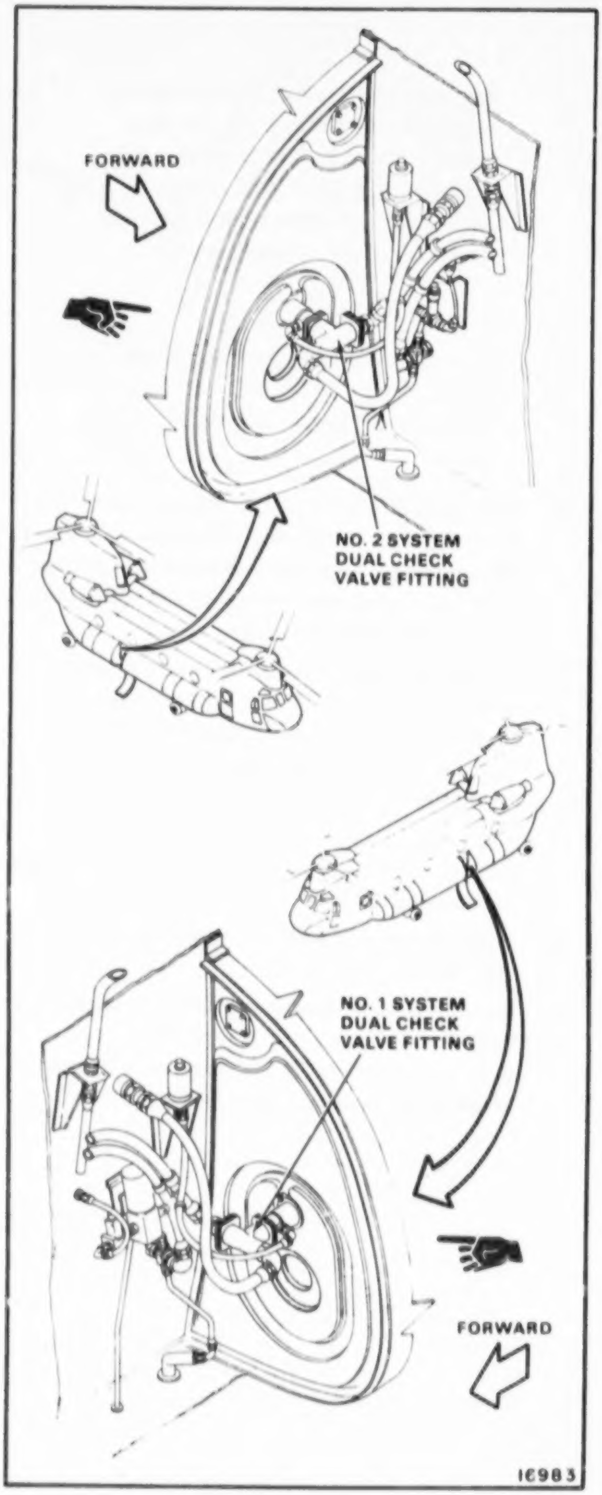
Grounded Container, Two Quart

Shut Off Valve Removed (Task 10-81)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
NO. 2 SYSTEM DUAL CHECK VALVE FITTING
NO. 1 SYSTEM DUAL CHECK VALVE FITTING
FORWARD
IC983

GO TO NEXT PAGE

10-95 REMOVE DUAL CHECK VALVE FITTING (Continued) 10-95

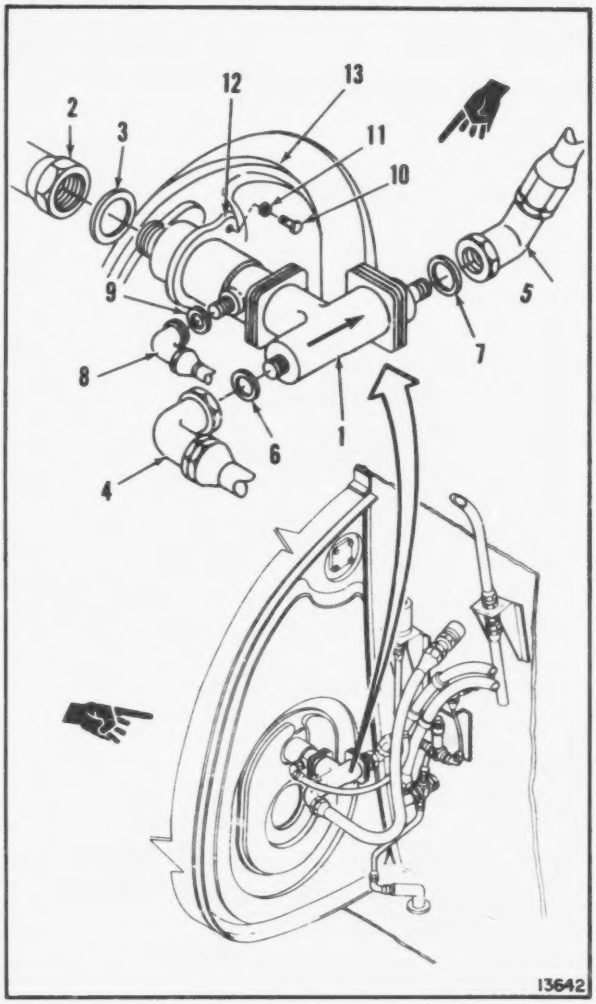
CAUTION

Do not allow dual check valve breakaway fitting (1) to turn within its mounting when disconnecting fuel and pressure lines. Otherwise, valve can fail and cause fuel blockage.

NOTE

Procedure is same to remove No. 1 or No. 2 system dual check valve fittings. No. 2 system fitting is shown here.

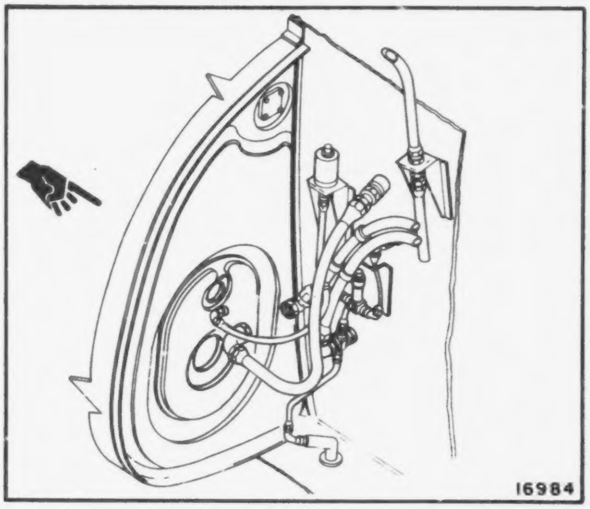
1. Hold dual check valve breakaway fitting (1) with a strap wrench and **disconnect hose (2)** (inside aft fuel tank). **Remove conical seal (3)** from hose fitting. Catch spilled fluid. Use a grounded container.
2. Hold dual check valve breakaway fitting (1) with a strap wrench and **disconnect hoses (4 and 5). Remove conical seals** (6 and 7). Catch spilled fuel. Use a grounded container.
3. Hold dual check valve breakaway fitting (1) with a strap wrench and **disconnect pressure hose** (8). **Remove packing** (9).
4. **Cap fitting (1) and plug hoses** (2, 4, 5, and 8).
5. **Remove four screws (10) and washers (11)** from flange (12) of dual check valve breakaway fitting (1) and **remove fitting from tank access door (13).**



10-95 REMOVE DUAL CHECK VALVE FITTING (Continued) 10-95

FOLLOW-ON MAINTENANCE:

None



END OF TASK

10-96 INSTALL DUAL CHECK VALVE FITTING

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Parts:
Packings

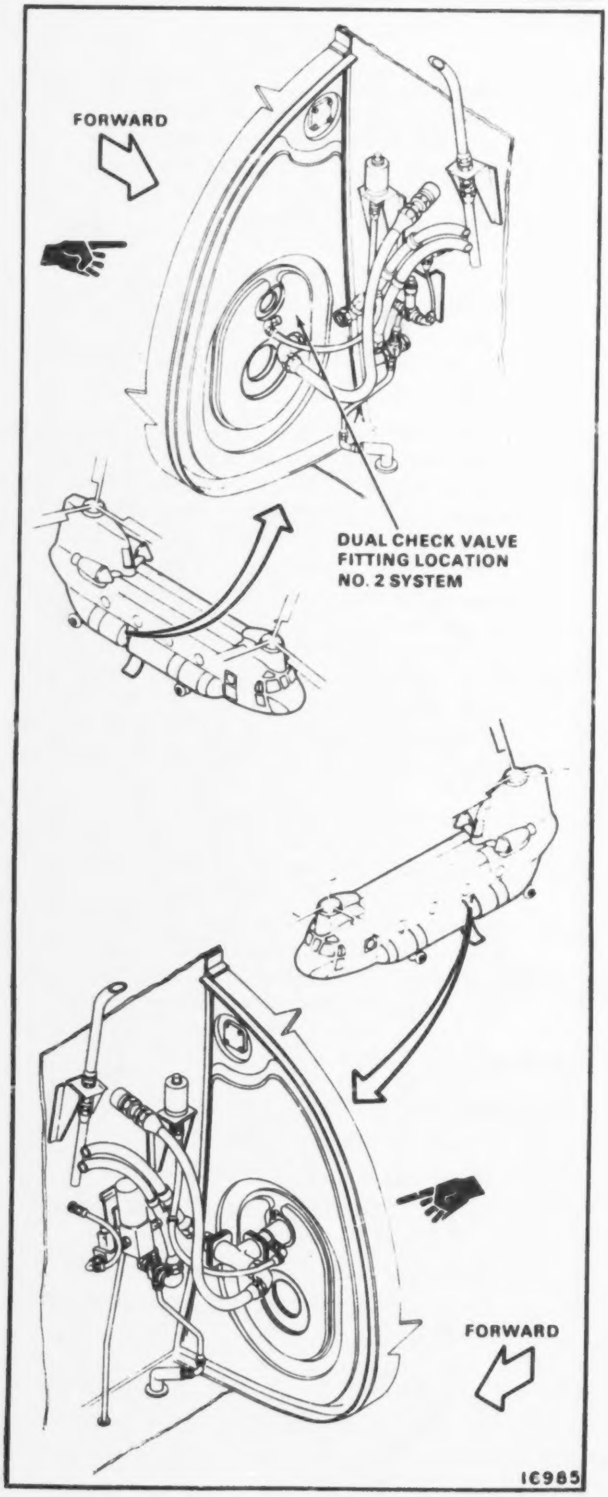
Personnel Required:
Medium Helicopter Repairer
Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


FORWARD
DUAL CHECK VALVE FITTING LOCATION NO. 2 SYSTEM
FORWARD
1C985

GO TO NEXT PAGE

10-96 INSTALL DUAL CHECK VALVE FITTING (Continued) 10-96

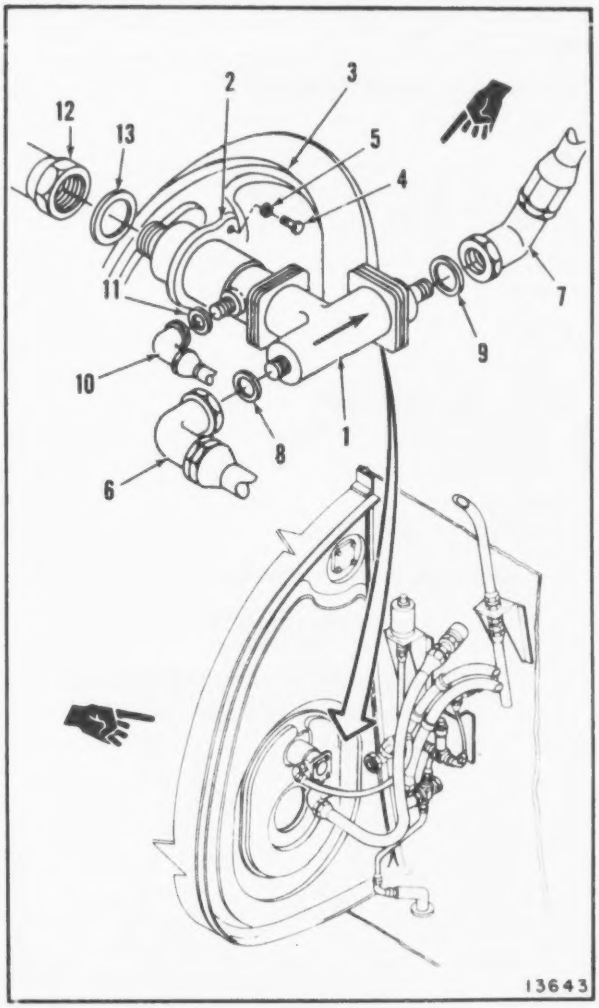
CAUTION

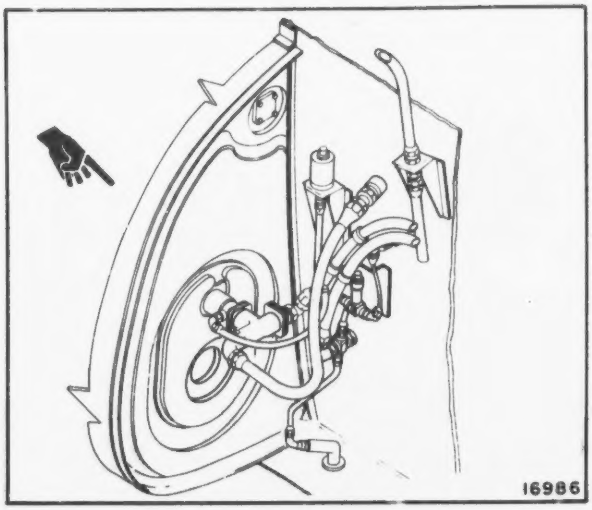
Do not allow dual check valve breakaway fitting (1) to turn within its mounting when connecting fuel and pressure lines. Otherwise valve can fail and cause fuel blockage.

NOTE

Procedure is same to install No. 1 or No. 2 system dual check valve fittings. No. 2 system fitting is shown here.

1. Install four-bolt flange (2) of dual check valve breakaway fitting (1) in tank access door (3). Check that ends of fitting are in position to accept fuel and pressure lines without turning fitting in its mounting.
2. Remove caps from fitting (1) ends.
3. Install dual check valve breakaway fitting (1) in tank access door (3). Use four screws (4) and washers (5).
4. Remove plugs from fuel hose (6 and 7) fittings. Install conical seals (8 and 9) in hose fittings. Hold dual check valve breakaway fitting (1) with a strap wrench and connect hoses.
5. Remove plug from pressure hose (10) fitting. Install packing (11) in hose fitting. Hold dual check valve breakaway fitting (1) with a strap wrench and connect hose.
6. Remove plug from fuel hose (12) fitting (inside aft fuel tank). Install conical seal (13). Hold dual check valve breakaway fitting (1) with a strap wrench and connect hose.





INSPECT

FOLLOW-ON MAINTENANCE:

Refuel aircraft (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (TM 55-1520-240-T).

Check for leaks (Task 10-4).

Close aft intertank access door (Task 2-188).

END OF TASK

10-97 REMOVE APU FUEL BOOST PUMP 10-97

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Cloths (E135)

Paper Tags (E264)

Personnel Required:

67U10 Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Helicopter Grounded (Task 1-29)

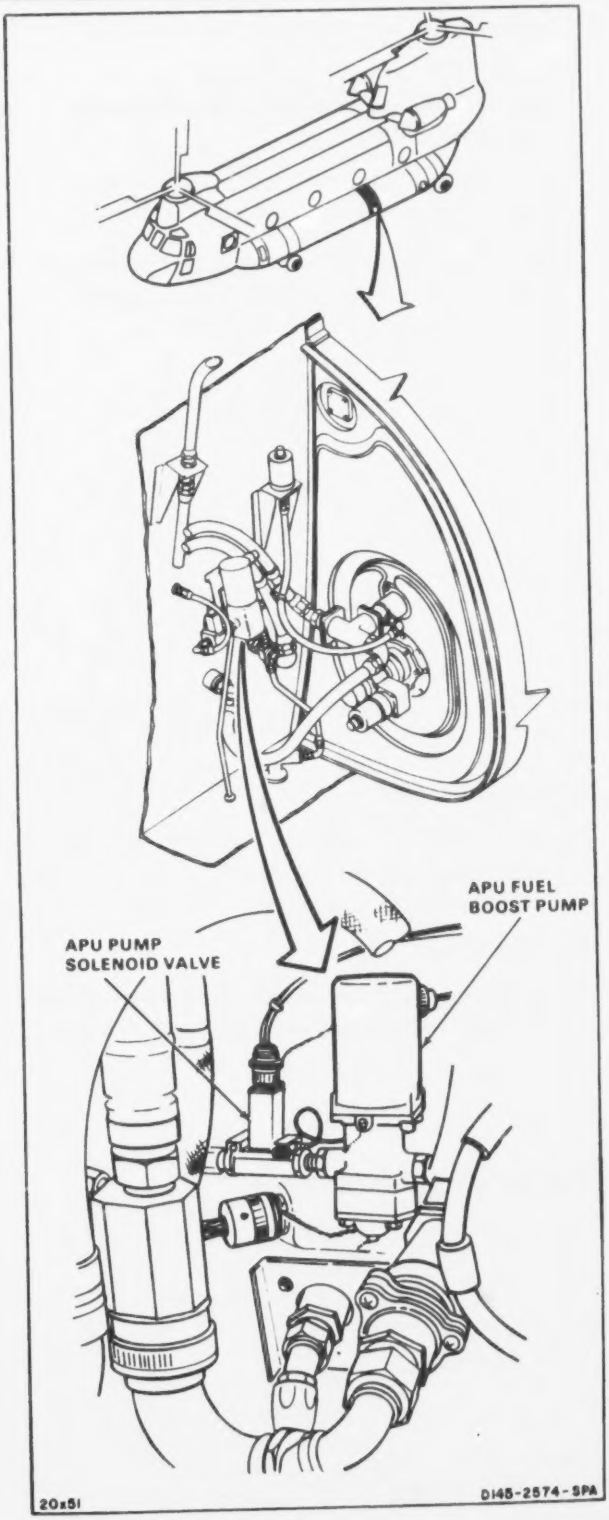
Left Aft Intertank Bay Access Door Open (Task 2-185)

Grounded Container, Two Quart

General Safety Instructions:

WARNING

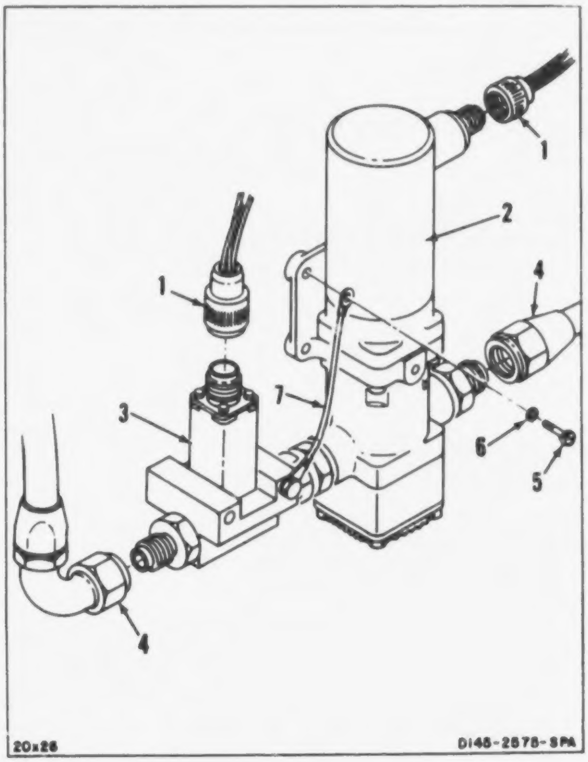
All regulations and instructions for handling fuels shall be strictly observed.



GO TO NEXT PAGE

10-97 REMOVE APU FUEL BOOST PUMP (Continued) 10-97

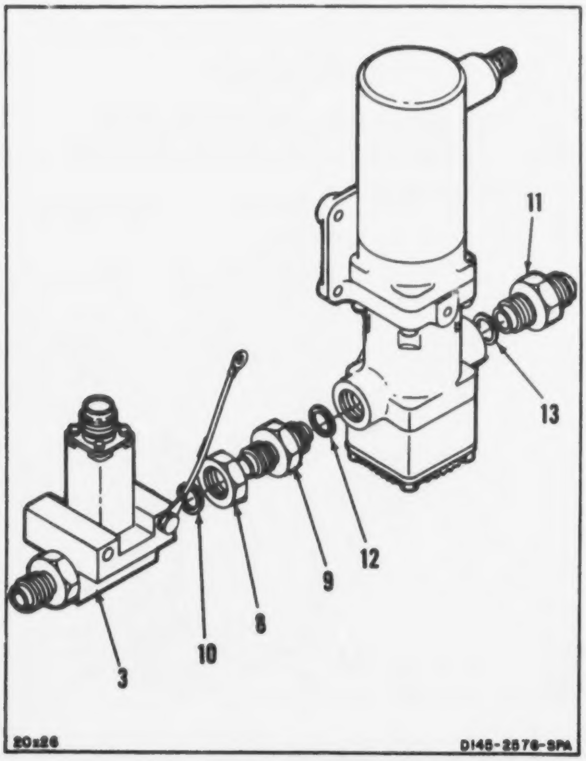
1. Tag and **disconnect two electrical connectors (1)** from pump (2) and solenoid valve (3).
2. Tag and **disconnect two fuel hoses (4).** Plug hose connectors.
3. Remove four screws (5) and washers (6). **Disconnect electrical lead (7).**
4. **Remove pump (2) and solenoid valve (3).** Use container and cloths (E135) for any spilled fuel.



5. Loosen nut (8).
6. Hold nipple (9) with wrench. **Remove solenoid valve (3)** and packing (10). Use wrench on flats of solenoid valve.
7. Plug valve (3).
8. **Remove two nipples (9 and 11),** packings (12 and 13) and nut (8). Plug ports in pump.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

10-98 INSTALL APU FUEL BOOST PUMP 10-98

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Parts:
Packings

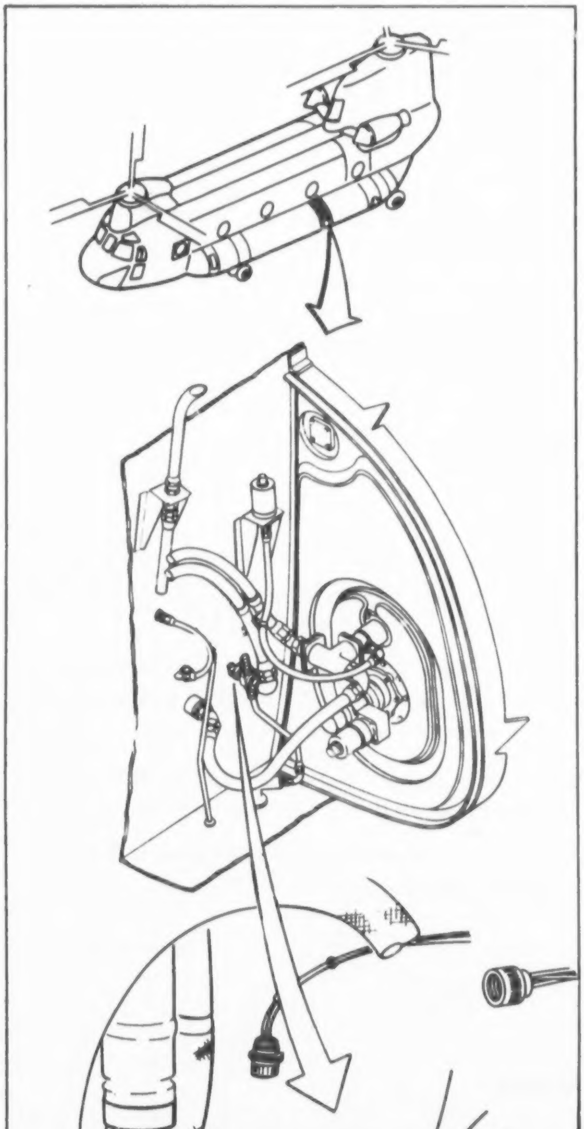
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

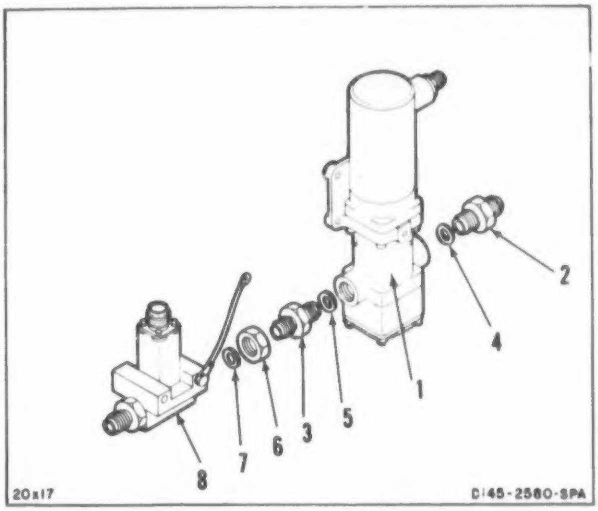
All regulations and instructions for handling fuels shall be strictly observed.



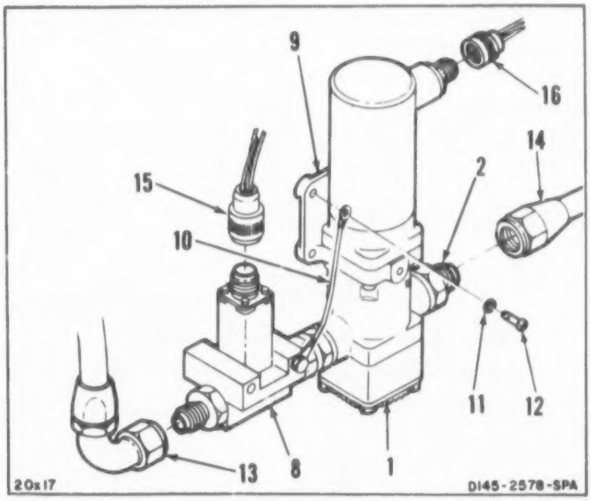
GO TO NEXT PAGE

10-98 INSTALL APU FUEL BOOST PUMP (Continued) 10-98

1. Remove plugs from pump (1) and **install nipples (2 and 3),** and packings (4 and 5) in pump.
2. Install locknut (6) and packing (7) on nipple (3).
3. Remove plug from solenoid valve (8). Hold nipple (3) with wrench. **Install solenoid valve** on nipple with valve. Tighten nut (6), with valve aligned with pump (1) as shown.



4. **Position pump (1)** on fuselage mounting bracket (9). **Install electrical lead (10),** four washers (11) **and screws (12).**
5. Remove plug from fuel hose (13) and cap from solenoid valve (8). **Install fuel hose** on solenoid valve. Remove tag.
6. Remove plug from fuel hose (14). **Install fuel hose** on pump (1). Remove tag.
7. **Connect electrical connectors (15 and 16).** Remove tags.



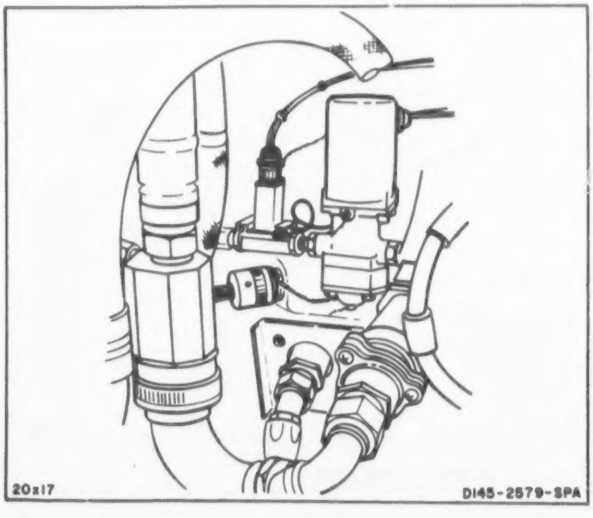
INSPECT

FOLLOW-ON MAINTENANCE:

Perform operational check of apu (TM 55-1520-240-T).

Check apu fuel boost pump for leaks.

Close left aft intertank bay access door (Task 2-188).



END OF TASK

10-99 REMOVE APU FUEL SOLENOID VALVE 10-99

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloths (E135)

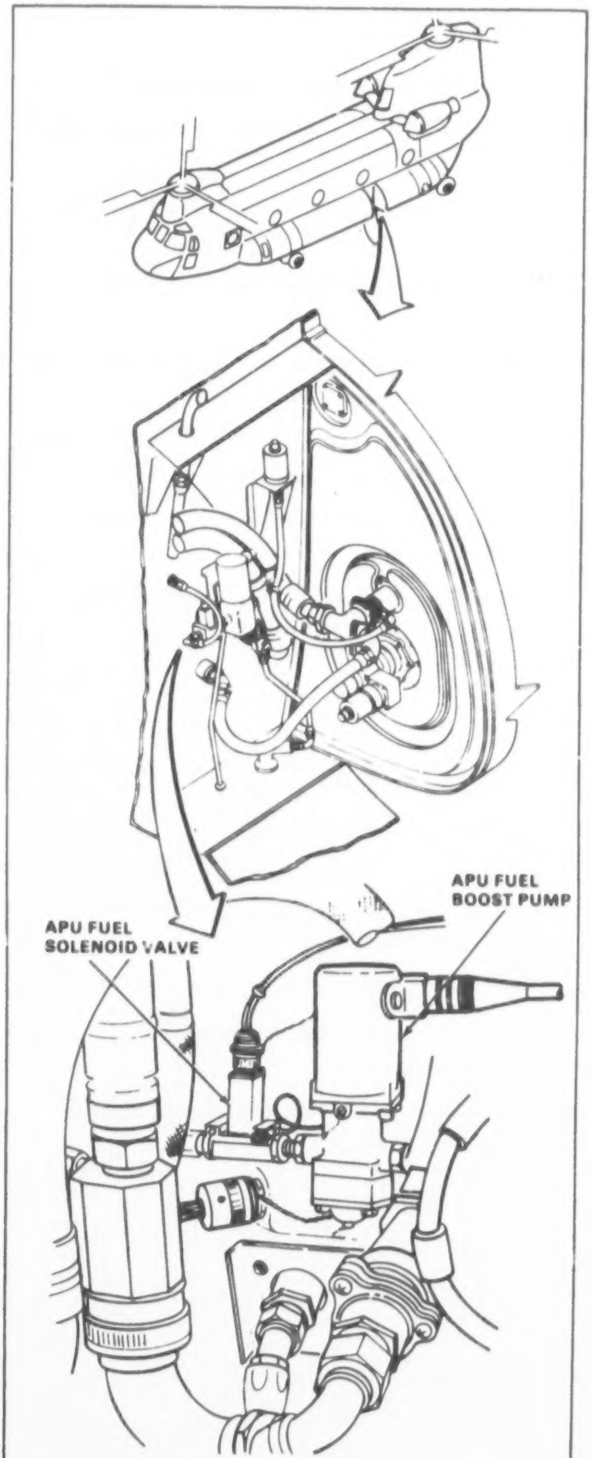
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Left Aft Intertank Bay Access Door Open (Task 2-185)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


APU FUEL BOOST PUMP
APU FUEL SOLENOID VALVE
20X51
D145-2930-SPA

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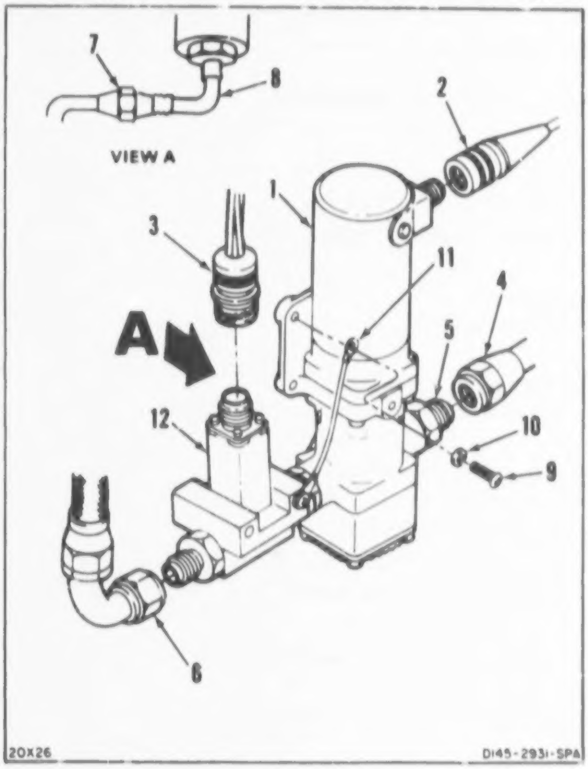
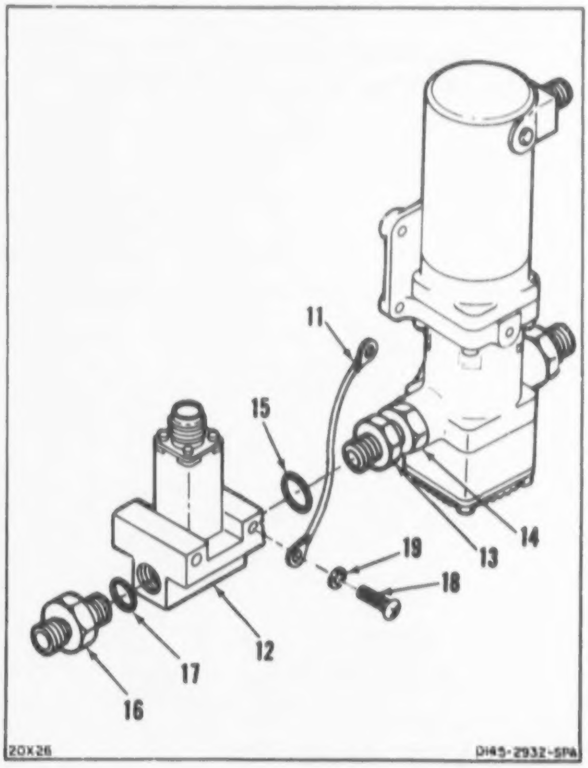
10-99 REMOVE APU FUEL SOLENOID VALVE (Continued) 10-99

1. Place container under pump (1) to catch spilled fuel.
2. **Disconnect electrical connector (2).**
3. Remove lockwire and **disconnect electrical connector (3).**
4. **Disconnect fuel hose (4).** Plug hose connector. Cap nipple (5) in pump (1).
5. **Disconnect fuel hose (6).** Plug hose connector.
6. **Disconnect drain hose (7).** Plug hose connector. Cap elbow (8).
7. **Remove four screws (9)** and four washers (10). **Disconnect electrical lead (11).**
8. **Remove pump (1) and solenoid valve (12).**
9. Wipe up spilled fuel. Use cloths (E135).



10. Loosen locknut (13).
11. Hold nipple (14) with wrench. Use wrench on flats of valve (12). **Remove valve,** packing (15) and locknut (13).
12. Plug port in valve (12) and cap nipple (14).
13. **Remove nipple (16)** and packing (17). Plug port in valve (12).
14. **Remove screw (18), washer (19) and electrical lead (11).**



FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-100 INSTALL APU FUEL SOLENOID VALVE 10-100

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Lockwire (E229)

Parts:
Packings

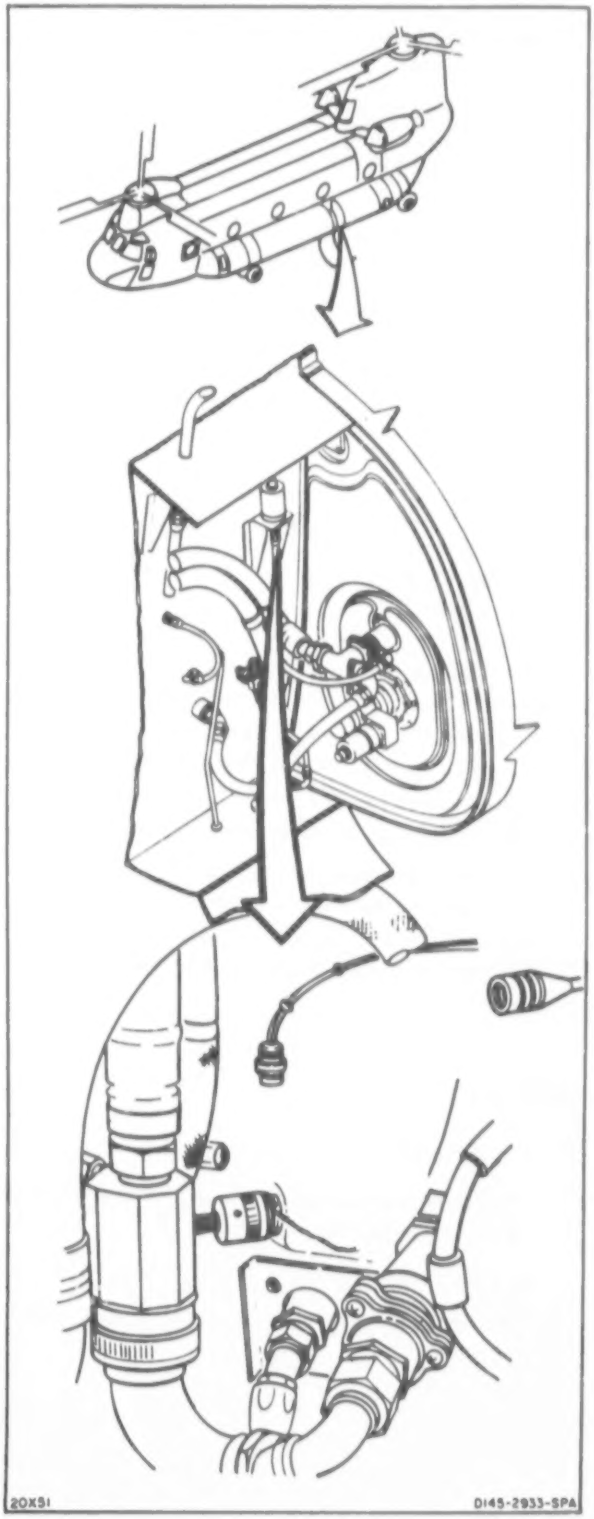
Personnel Required:
67U10 Medium Helicopter Repairer
67U30Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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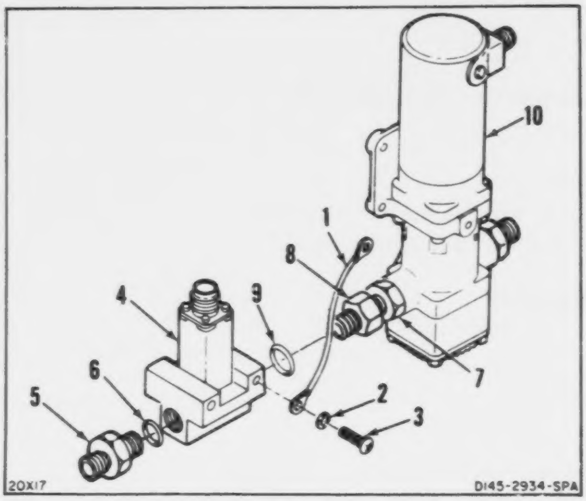
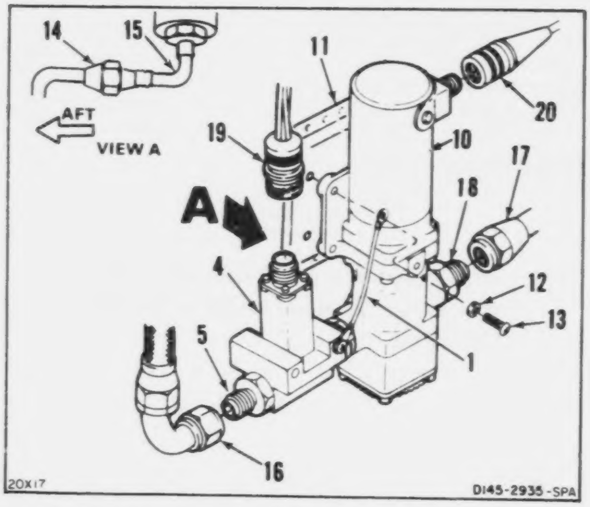
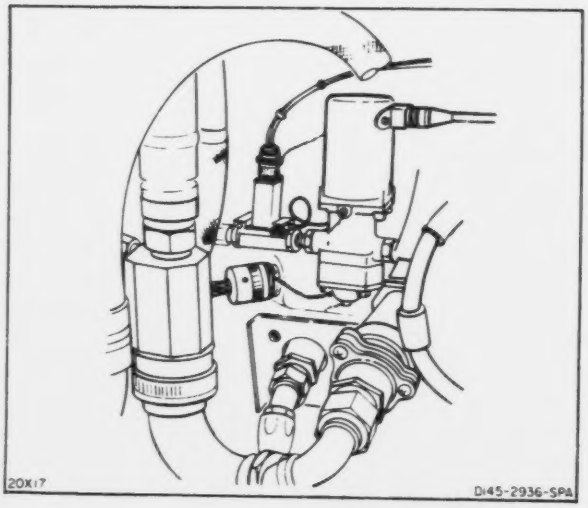
10-100 INSTALL APU FUEL SOLENOID VALVE (Continued) 10-100



1. **Connect electrical lead (1)** by installing washer (2) and screw (3) in valve (4).
2. Remove plugs from valve (4).
3. **Install nipple (5)** and packing (6) on valve (4).
4. Remove cap from nipple (7). Install locknut (8) and packing (9) on nipple (7).
5. Hold nipple (7) with wrench. **Install solenoid valve (4)** on nipple (7). Align valve (4) with pump (10) and tighten locknut (8).



6. **Position pump (10)** on bracket (11). **Install electrical lead (1)** and four washers (12) and screws (13).
7. Remove plug from fuel hose (14) and cap from elbow (15). **Connect fuel hose (14)** to elbow (15).
8. Remove plug from fuel hose (16) and cap from nipple (5). **Connect hose** to nipple.
9. Remove plug from hose (17) and cap from nipple (18). **Connect hose** to nipple.
10. **Connect electrical connector (19)** to valve (4). Lockwire connector to valve. Use lockwire (E229).
11. **Connect electrical connector (20)** to pump (10).



INSPECT

FOLLOW-ON MAINTENANCE:

Perform operational check of fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-4).

Close left aft intertank bay access door (Task 2-188).

END OF TASK

10-101 REMOVE APU FUEL SHUTOFF MANUAL VALVE 10-101

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloths (E135)

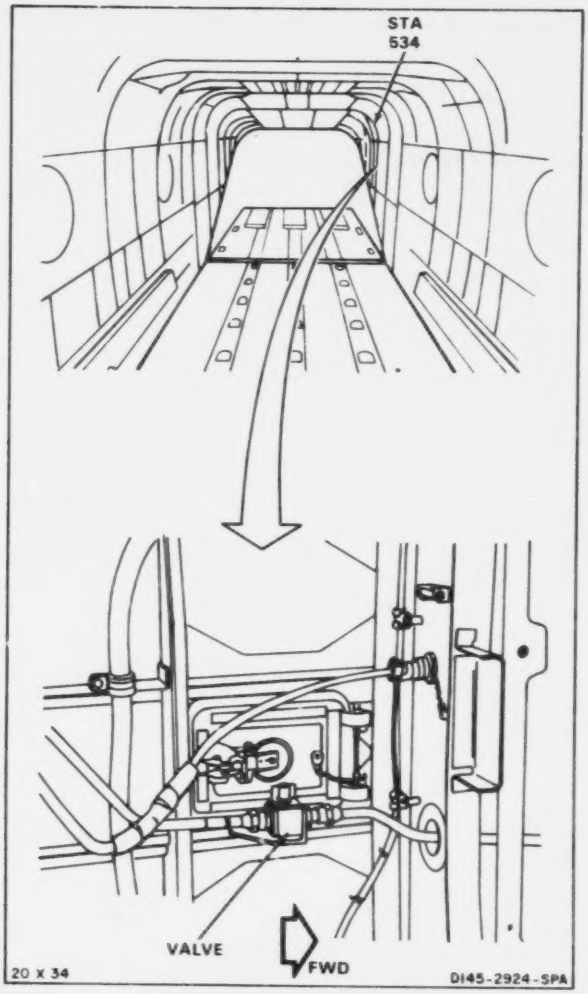
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Grounded Container, Two Quart

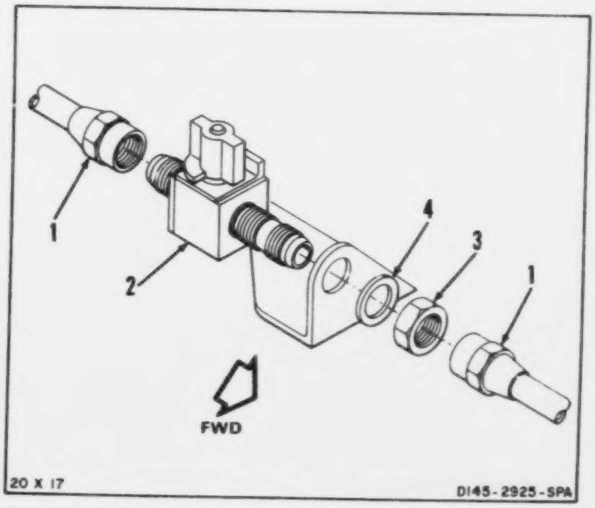
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



1. **Disconnect two fuel connectors (1)** from shutoff valve (2). Use container for spilled fuel. Plug fuel tubes.
2. **Remove nut (3)** and washer (4).
3. **Remove valve (2).** Cap valve connectors.
4. Wipe up any spilled fuel. Use cloths (E135).



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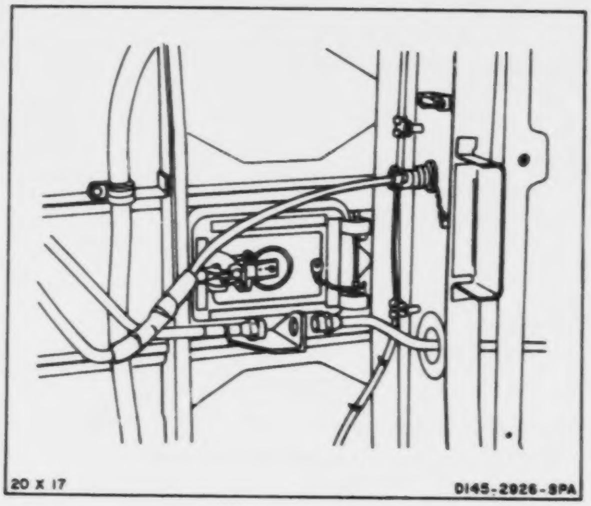
10-101 REMOVE APU FUEL SHUTOFF MANUAL VALVE (Continued) 10-101


20 X 17
D145-2926-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-102 INSTALL APU FUEL SHUTOFF MANUAL VALVE 10-102

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

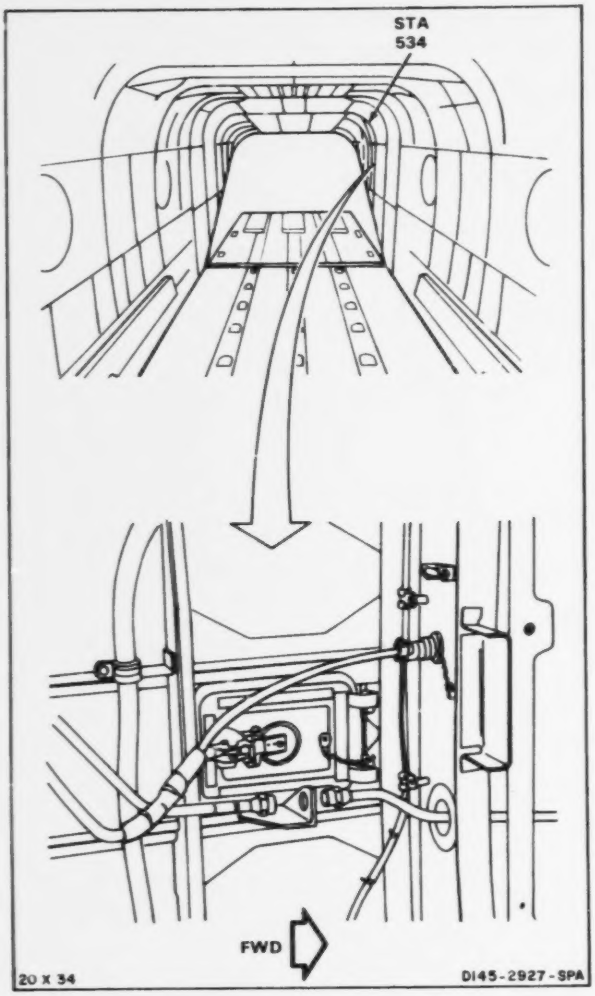
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

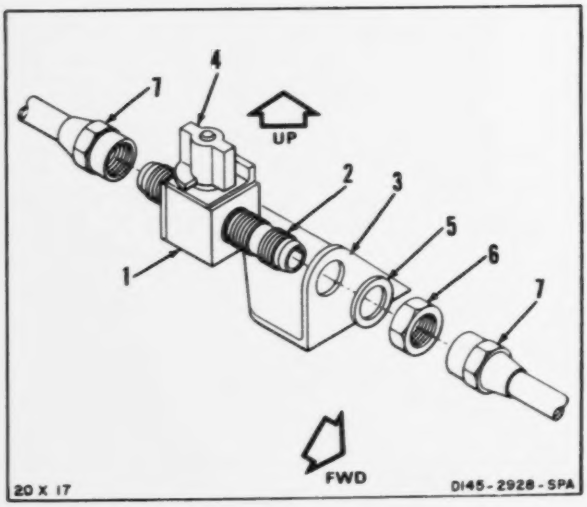
WARNING

All regulations and instructions for handling fuels shall be strictly observed.



1. Remove caps from valve (1).
2. **Position INLET connector (2) of valve (1)** through hole in bracket (3). Make sure valve handle (4) is on top.
3. **Install** washer (5) and **nut (6).**
4. Remove plugs from fuel connectors (7). **Connect two fuel connectors** to valve (1).

INSPECT



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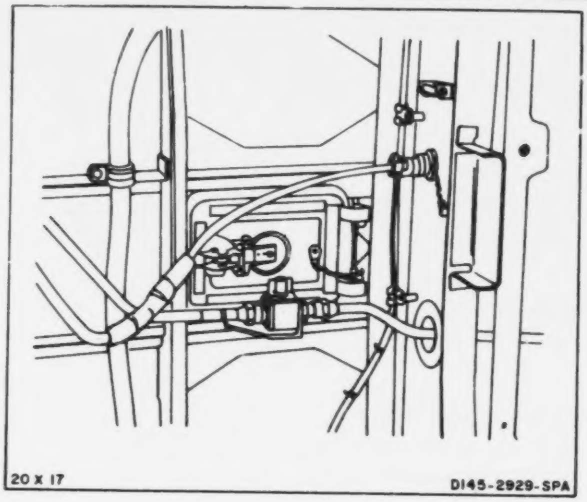
10-102 INSTALL APU FUEL SHUTOFF MANUAL VALVE (Continued) 10-102

FOLLOW-ON MAINTENANCE:

Perform apu operational check (TM 55-1520-240-T).

Check for leaks (Task 10-4).



END OF TASK

10-103 REMOVE ENGINE FUEL LINE CHECK VALVE 10-103

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Crowsfoot 2-Inch
Open End Wrench 1 1/2-Inch

Materials:
Cloths (E135)

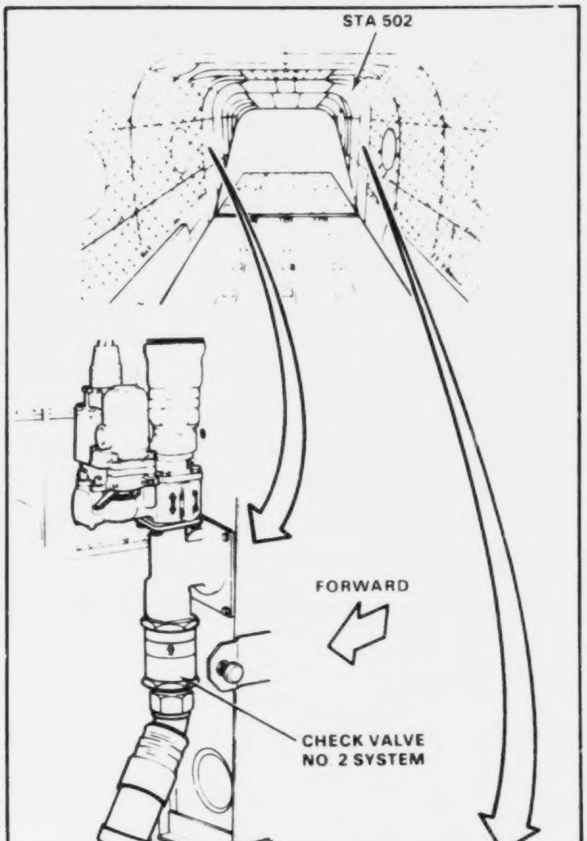
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Both Crossover Valves and Engine Fuel Valves Closed (TM 55-1520-240-T)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


STA 502
FORWARD
CHECK VALVE NO 2 SYSTEM
FORWARD
CHECK VALVE NO 1 SYSTEM
20x51
D145-4642-SPA

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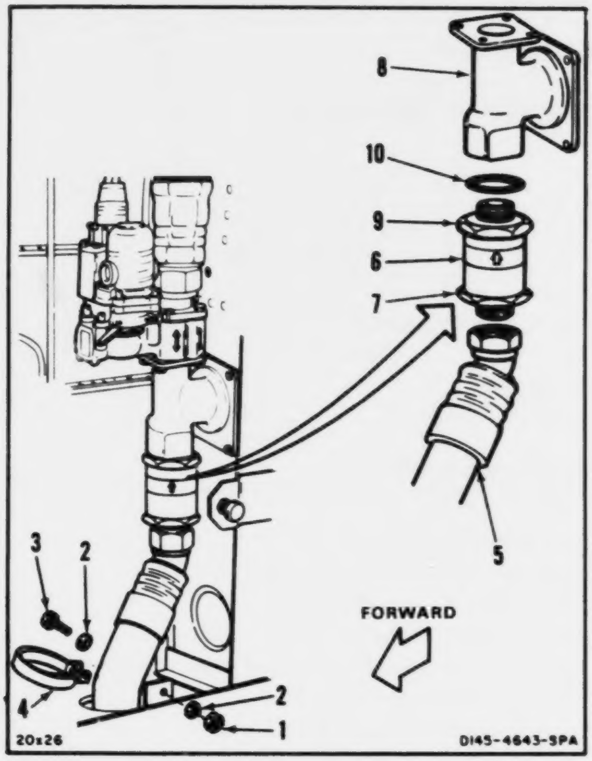
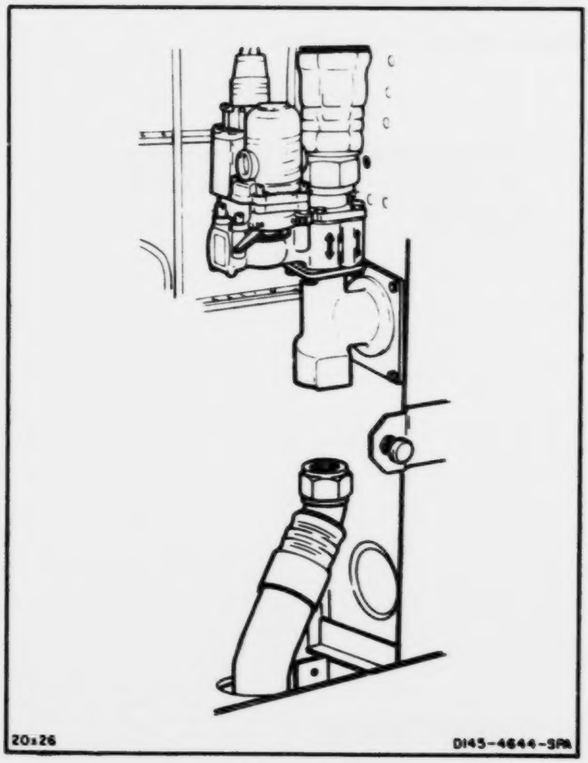
10-103 REMOVE ENGINE FUEL LINE CHECK VALVE (Continued) 10-103



NOTE

Procedure is same to remove No. 1 or No. 2 engine fuel line check valves. No. 2 check valve is shown here.

1. Remove nut (1), washers (2) and bolt (3) from clamp (4). **Remove clamp.**
2. **Disconnect hose (5)** from check valve (6). Use wrench on flats of fitting (7) to prevent valve from turning. Use container to catch spilled fuel. Plug hose.
3. **Remove check valve (6)** from fitting (8) using wrench on flats of fitting (9). Support fitting with wrench on flats. Plug fitting.
4. Remove packing (10) from fitting (9).
5. Clean up any spilled fuel. Use cloths (E135).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-104 INSTALL ENGINE FUEL LINE CHECK VALVE 10-104

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Wrench, Open End, 1 1/2-Inch
Crowfoot Attachment, 2 Inches

Materials:
None

Parts:
Packing

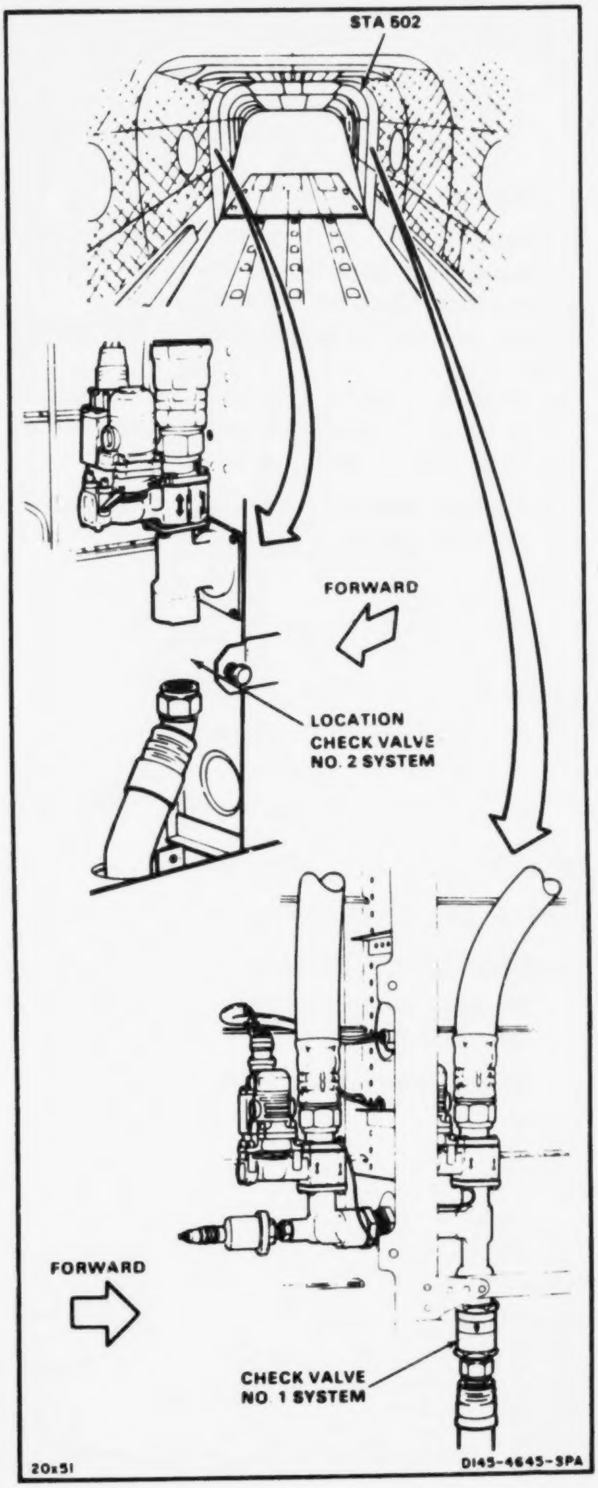
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

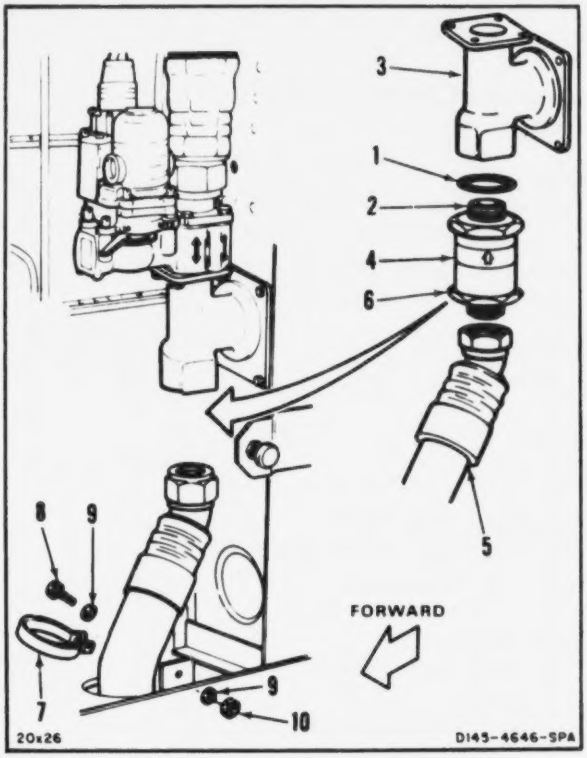
WARNING

All regulations and instructions for handling fuels shall be strictly observed.


STA 502
FORWARD
LOCATION
CHECK VALVE
NO. 2 SYSTEM
FORWARD
CHECK VALVE
NO. 1 SYSTEM
20x51
D145-4645-3PA

GO TO NEXT PAGE

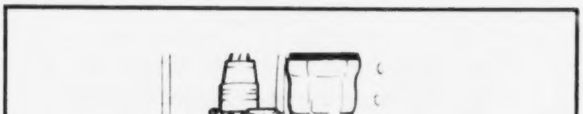
10-104 INSTALL ENGINE FUEL LINE CHECK VALVE (Continued) 10-104



NOTE

Procedure is same to install No. 1 or No. 2 engine fuel line check valves. No. 2 check valve is shown here.

1. Install packing (1) on fitting (2).
2. Remove plug from fitting (3). **Install check valve (4)** in fitting, flow arrow towards fitting. Hold fitting with wrench on flats. Tighten check valve using flats on fitting (2).
3. Remove plug from hose (5). **Connect hose to valve (4).** Support fitting (6) with wrench on flats while tightening hose.
4. **Position clamp (7)** on hose (5). **Install bolt (8),** washers (9), and nut (10).



INSPECT

FOLLOW-ON MAINTENANCE:

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (TM 55-1520-240-T).

Check for leaks (Task 10-4).

END OF TASK

10-105 REMOVE NO. 1 FUEL SYSTEM PRESSURE SWITCH (LEFT SIDE) 10-105

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloths (E135)

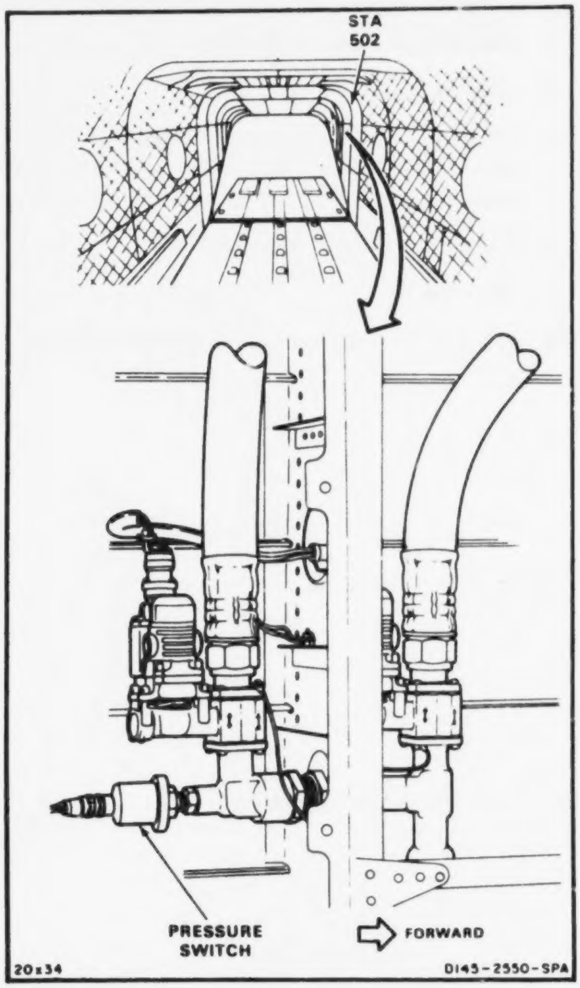
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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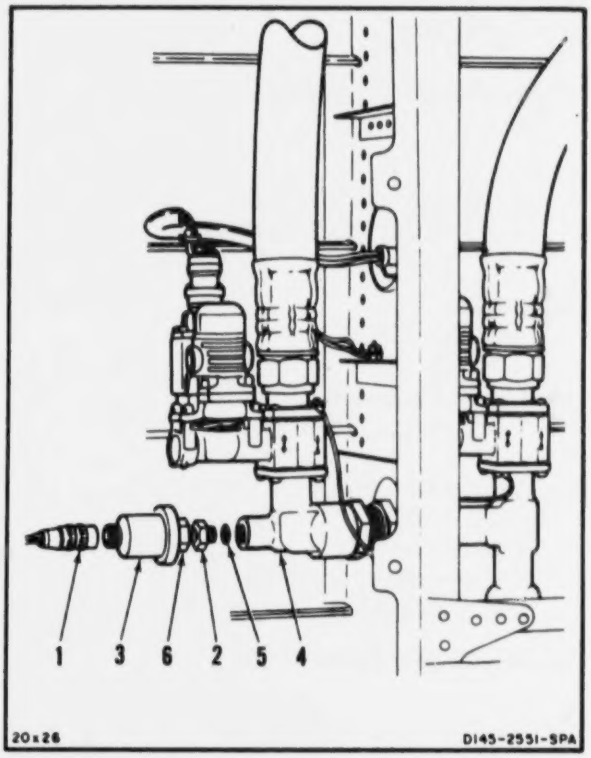
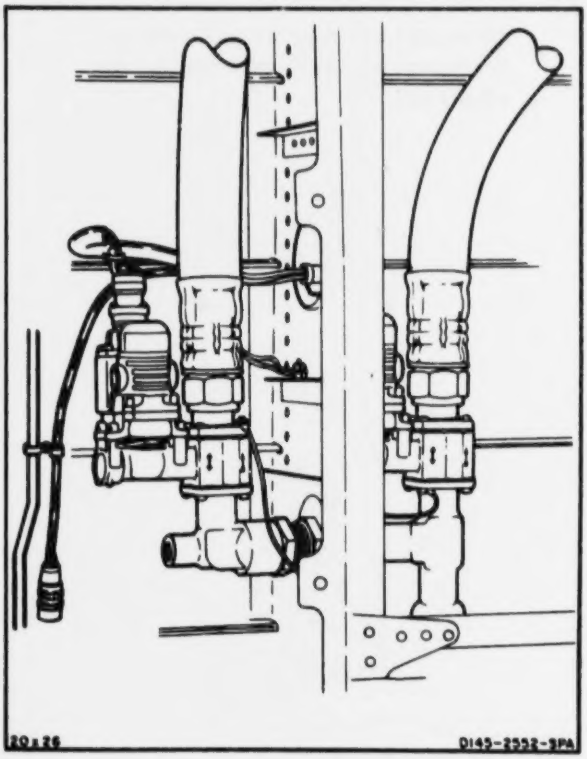
10-105 REMOVE NO 1 FUEL SYSTEM PRESSURE SWITCH (LEFT SIDE) (Continued) 10-105

1. **Disconnect cable plug (1).**
2. Loosen nut (2) on switch (3).
3. Hold tee (4) with wrench and **remove switch (3) and packing (5).** Use wrench on flats (6). Use container for spilled fuel.
4. Remove nut (2) from switch (3).
5. Plug tee (4).
6. Clean up any spilled fuel. Use cloths (E135).


1
3
6
2
5
4
20x26
D145-2551-SPA

FOLLOW-ON MAINTENANCE:

None


20x26
D145-2552-SPA

END OF TASK

10-106 INSTALL NO. 1 FUEL SYSTEM PRESSURE SWITCH (LEFT SIDE)

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Parts:
Packing

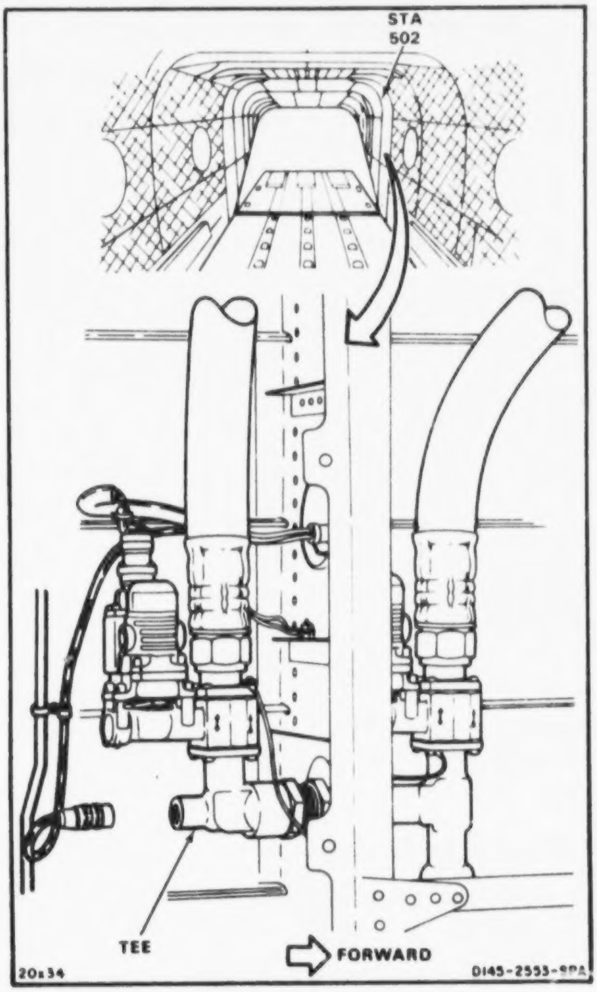
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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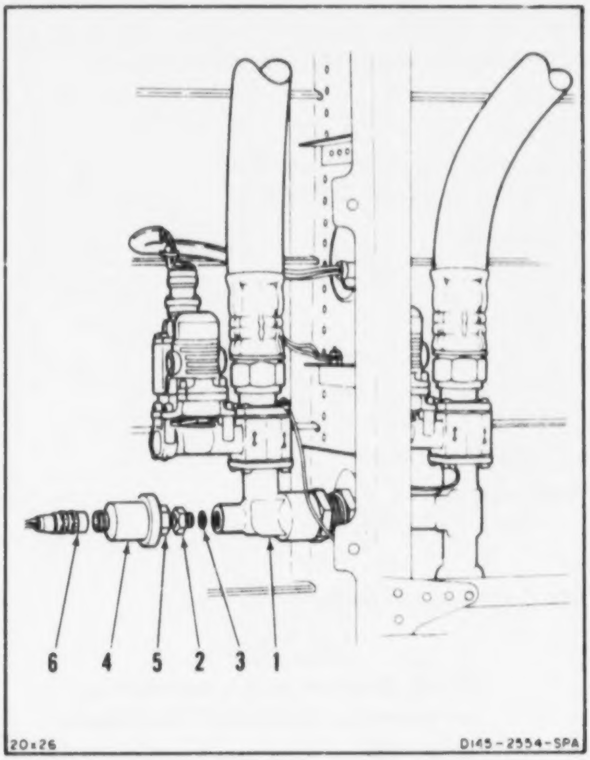
10-106 INSTALL NO. 1 FUEL SYSTEM PRESSURE SWITCH (LEFT SIDE) (Continued) 10-106

1. Remove plug from tee (1).
2. Install nut (2) and packing (3) on switch (4).
3. Hold tee (1) with wrench. **Install switch (4)** in tee (1). Use wrench on flats (5).
4. Tighten nut (2).
5. **Connect cable (6)** to switch (4).

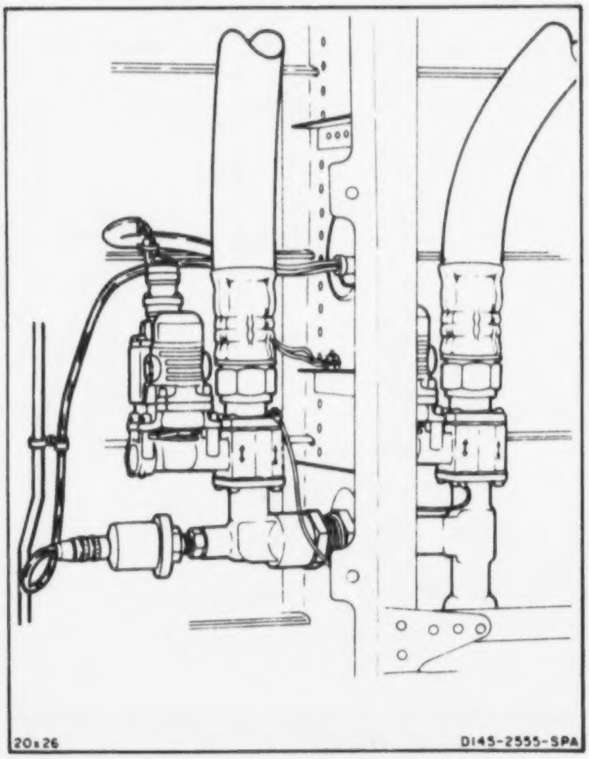
INSPECT


6
4
5
2
3
1
20x26
D145-2554-SPA

FOLLOW-ON MAINTENANCE:

Perform operational check (TM 55-1520-240-T).

Perform test of fuel feed system (Task 10-120).


20x26
D145-2555-SPA

END OF TASK

10-107 REMOVE NO. 2 FUEL SYSTEM PRESSURE SWITCH (RIGHT SIDE) 10-107

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Cloths (E135)
Twine (E433)

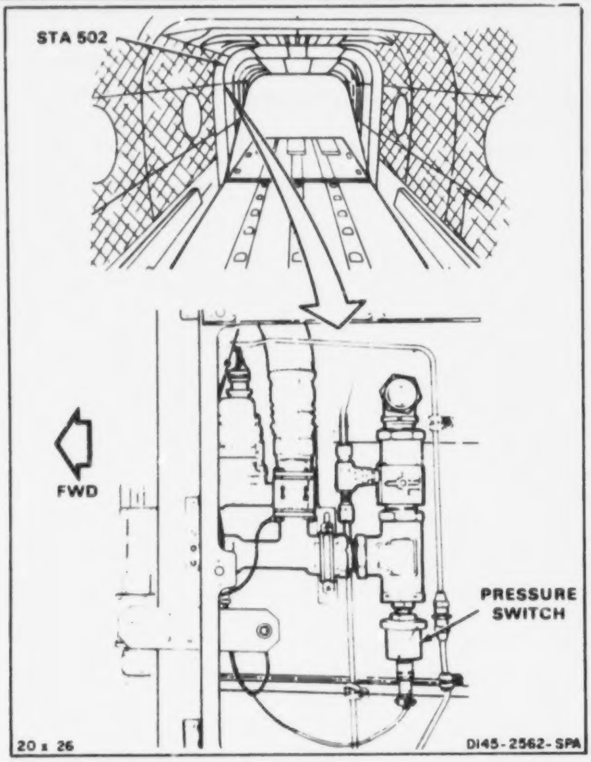
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Grounded Container, Two Quart

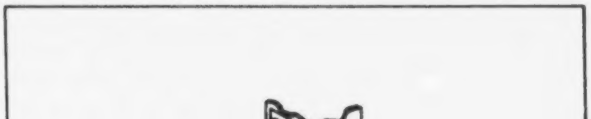
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



1. **Disconnect cable plug (1).** Tie to adjacent structure. Use twine (E433).
2. Loosen nut (2) on switch (3).
3. Hold tee (4) with wrench and **remove switch (3) and packing (5).** Use wrench on flats (6). Use container for spilled fuel.
4. Remove nut (2) from switch (3).
5. Plug tee (4).
6. Clean up any spilled fuel. Use cloths (E135).



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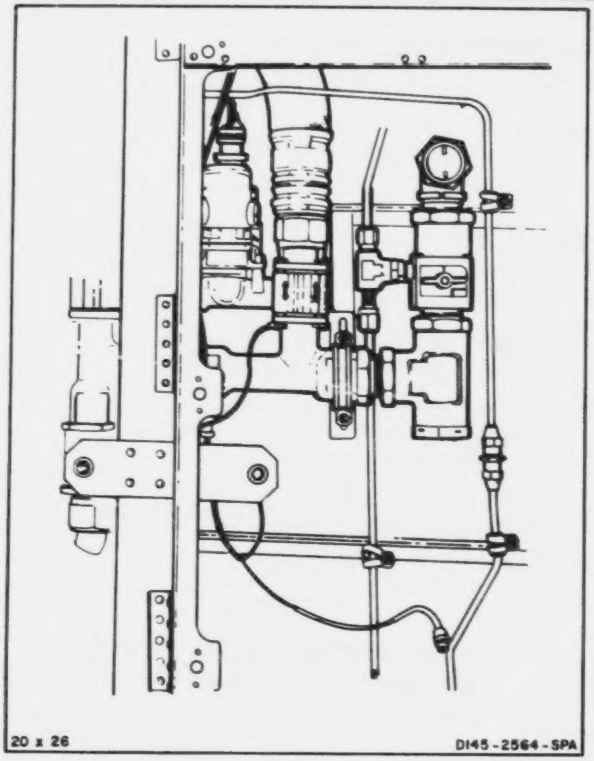
10-107 REMOVE NO. 2 FUEL SYSTEM PRESSURE SWITCH (RIGHT SIDE) (Continued) 10-107

FOLLOW-ON MAINTENANCE:

None


20 x 26
DI45-2564-SPA

END OF TASK

10-108 INSTALL NO. 2 FUEL SYSTEM PRESSURE SWITCH (RIGHT SIDE) 10-108

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Parts:
Packing

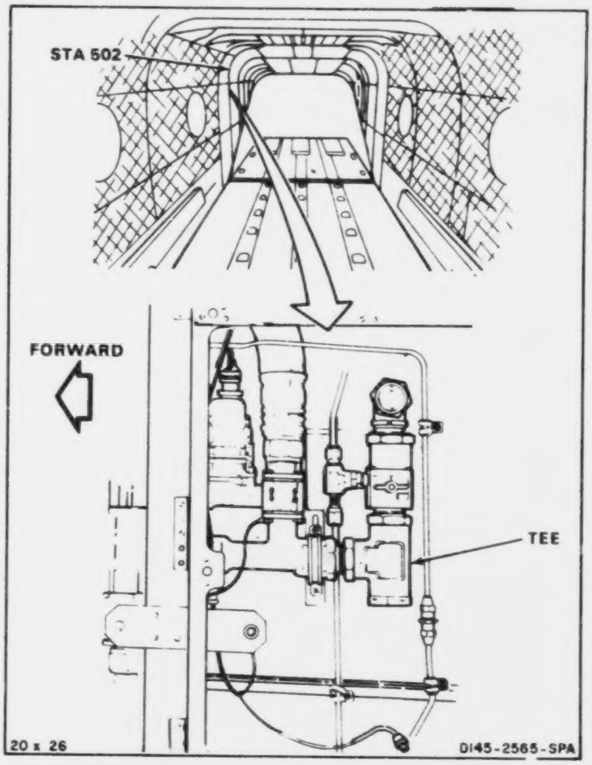
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

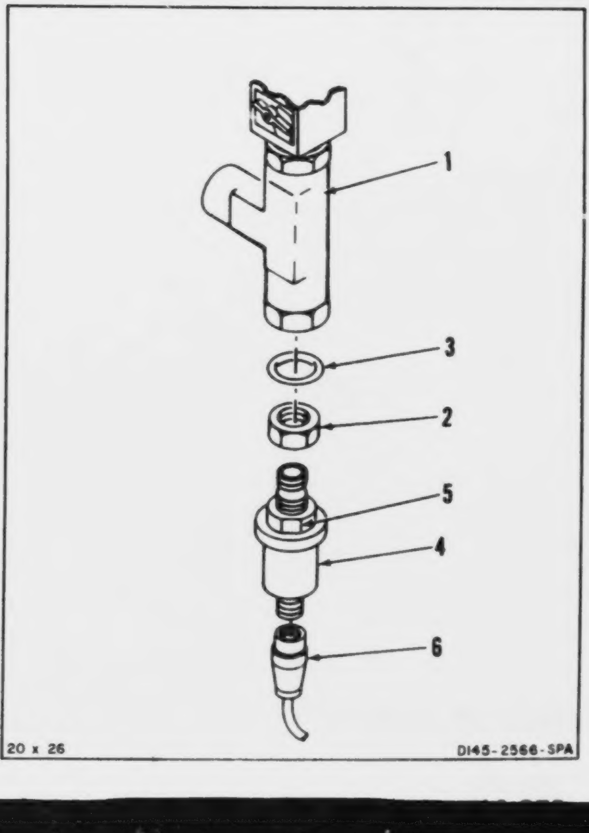
WARNING

All regulations and instructions for handling fuels shall be strictly observed.



1. Remove plug from tee (1).
2. Install nut (2) and packing (3) on switch (4).
3. Hold tee (1) with wrench. **Install switch (4)** on tee (1). Use wrench on flats (5).
4. Tighten nut (2).
5. **Connect cable plug (6)** to switch (4).

INSPECT



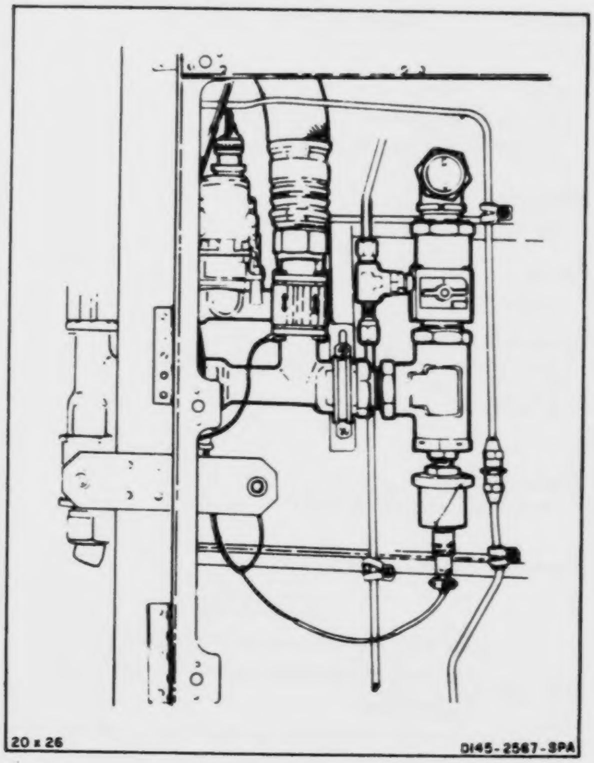
GO TO NEXT PAGE

10-108 INSTALL NO. 2 FUEL SYSTEM PRESSURE SWITCH (RIGHT SIDE) (Continued) 10-108

FOLLOW-ON MAINTENANCE:

Perform test of fuel feed system (Task 10-120).

Perform operational check of No. 2 fuel system (TM 55-1520-240-T).



END OF TASK

10-109 REMOVE DEFUELING MANUAL VALVE 10-109

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Open End, Wrench, 1 5/8-Inch
Open End, Wrench, 1 1/2-Inch

Materials:
Cloths (E135)

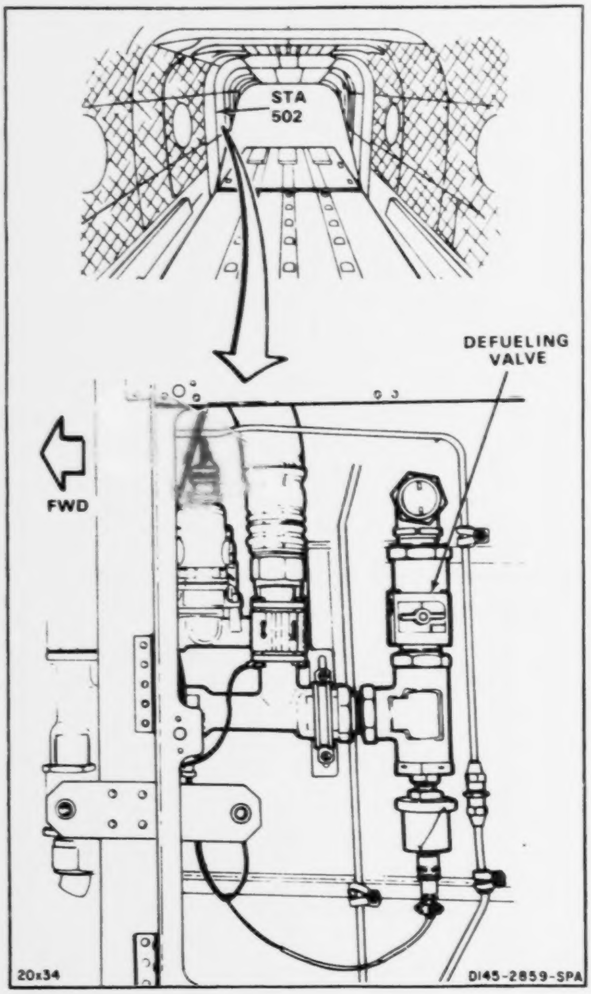
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Grounded Container, Two Quart

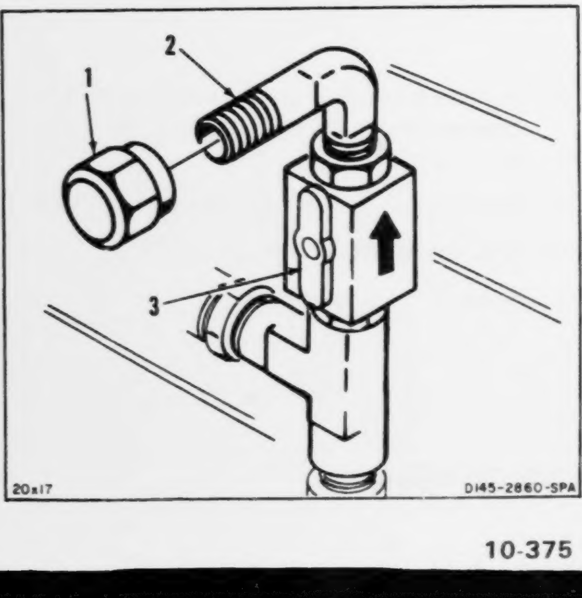
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



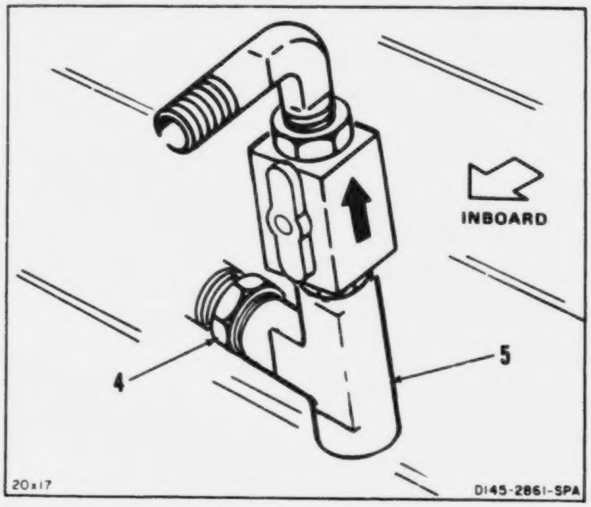
1. Remove cap (1) from elbow (2).
2. Turn valve knob (3) counterclockwise to vertical position. **Drain fuel.** Use container for fuel.



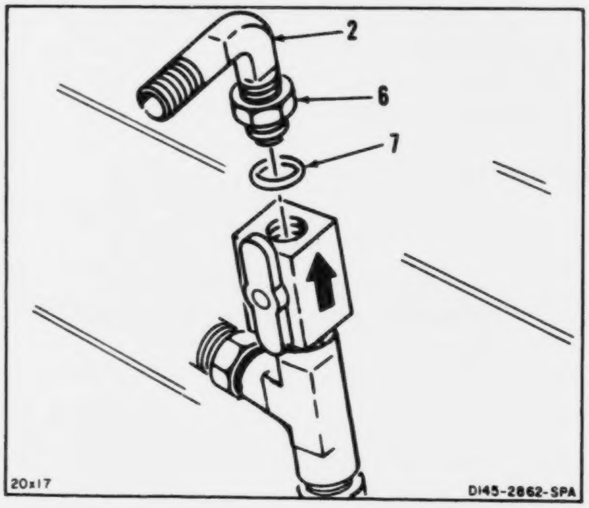
GO TO NEXT PAGE

10-109 REMOVE DEFUELING MANUAL VALVE (Continued) 10-109

3. Loosen nut (4). **Tilt tee (5)** inboard.


INBOARD
4
5
20x17
D145-2861-SPA

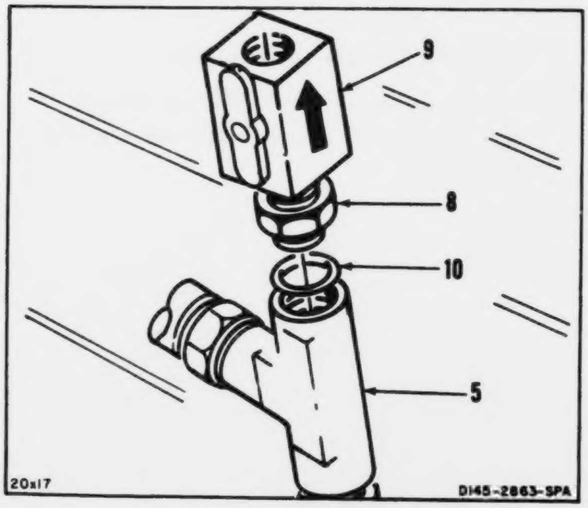
4. Loosen nut (6). **Remove elbow (2)** and packing (7).


2
6
7
20x17
D145-2862-SPA

5. Hold tee (5) with wrench. Loosen nut (8). **Remove valve (9)** and packing (10). Plug tee.
6. Clean up any spilled fuel. Use cloths (E135).

FOLLOW-ON MAINTENANCE:

None


9
8
10
5
20x17
D145-2863-SPA

END OF TASK

10-110 INSTALL DEFUELING MANUAL VALVE 10-110

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Open End Wrench 1 5/8-Inch
Open End Wrench 1 1/2-Inch

Materials:
None

Parts:
Packings

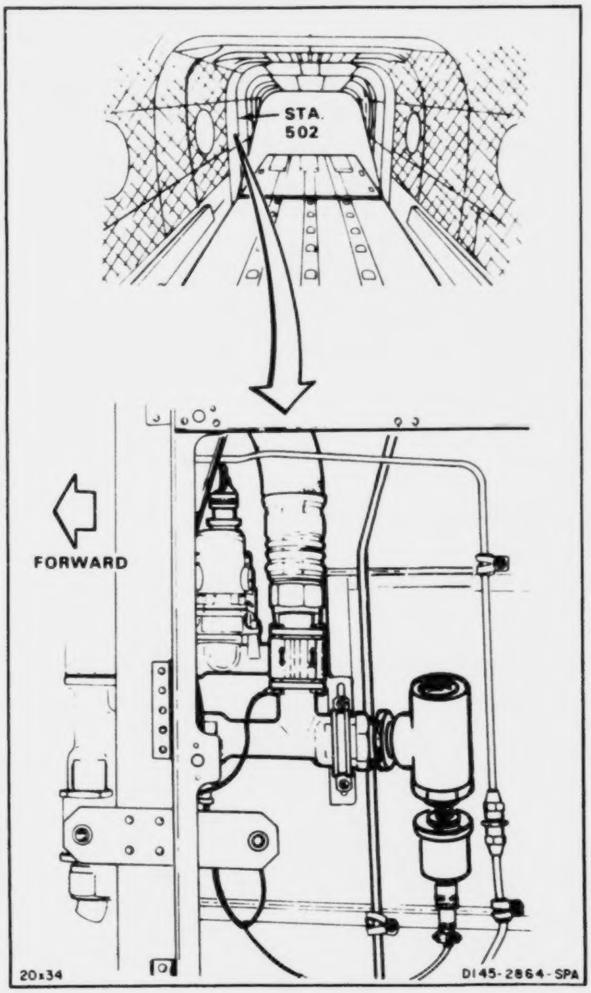
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

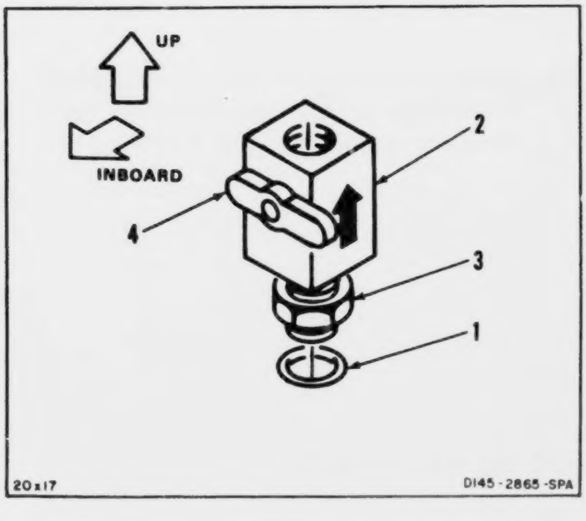
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


STA. 502
FORWARD
20x34
D145-2864-SPA

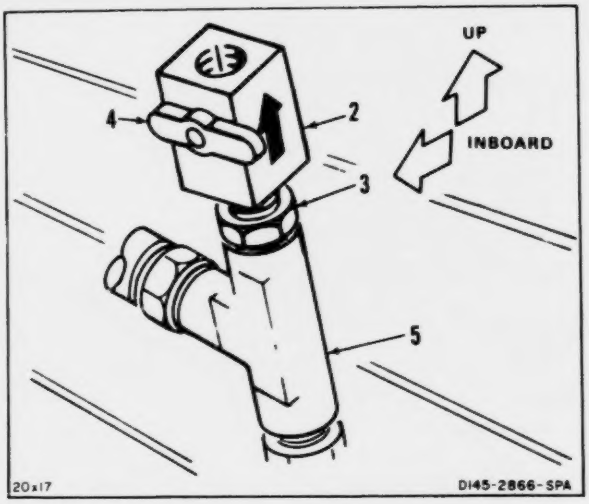
1. Install packing (1) on valve (2) next to nut (3). Turn valve knob (4) to horizontal position as shown.


UP
INBOARD
2
4
3
1
20x17
D145-2865-SPA

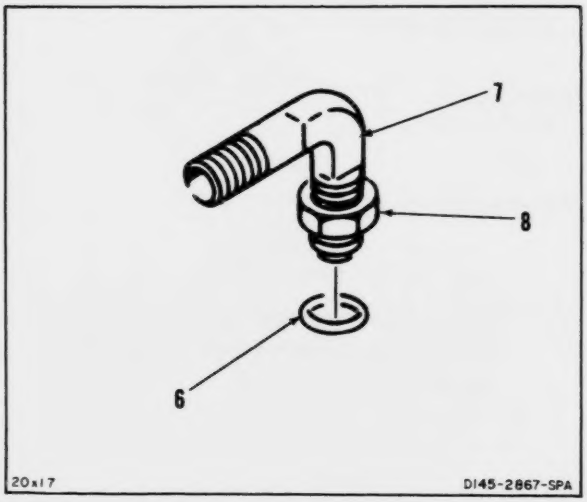
GO TO NEXT PAGE

10-110 INSTALL DEFUELING MANUAL VALVE (Continued) 10-110

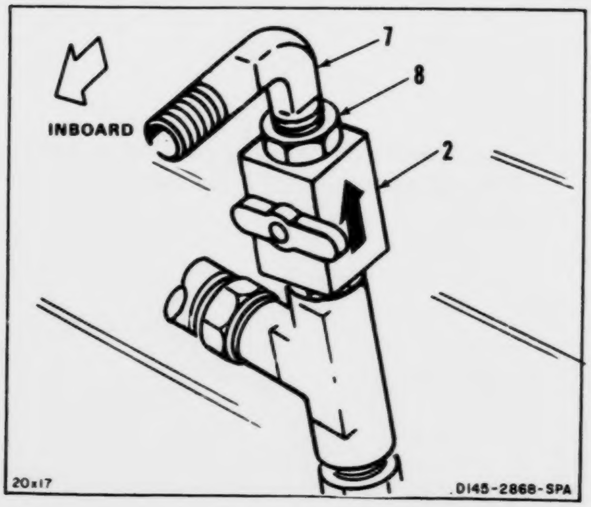
2. Remove plug from tee (5). **Install valve (2)** on tee so knob (4) faces inboard. Hold tee with wrench. Tighten nut (3).


UP
INBOARD
4
2
3
5
20x17
D145-2866-SPA

3. Install packing (6) on elbow (7) next to nut (8).


7
8
6
20x17
D145-2867-SPA

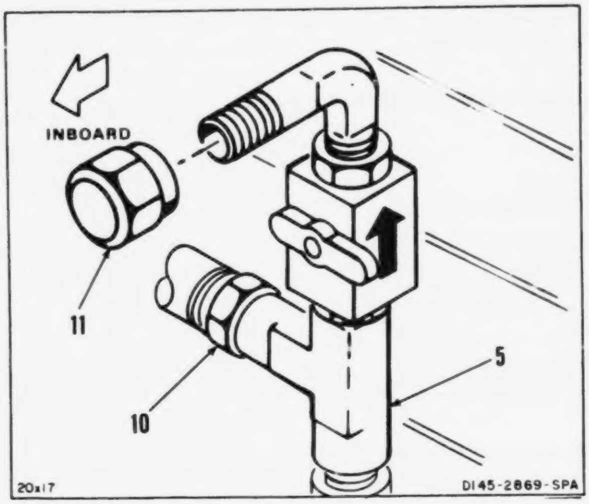
4. Remove plug from valve (2). **Install elbow (7)** on valve so elbow faces inboard. Hold valve with wrench. Tighten nut (8).


INBOARD
7
8
2
20x17
D145-2868-SPA

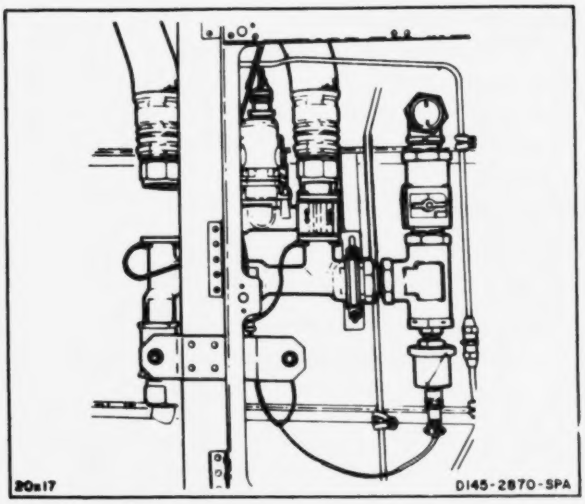
GO TO NEXT PAGE

10-110 INSTALL DEFUELING MANUAL VALVE(Continued) 10-110

5. **Tilt tee (5)** to vertical position as shown. **Tighten nut (10).** Install cap (11) on elbow.


INBOARD
11
10
5
20x17
D145-2869-SPA

INSPECT


20x17
D145-2870-SPA

FOLLOW-ON MAINTENANCE:

Bleed fuel system (Task 10-121).

Check for leaks. (Task 10-4).

END OF TASK

10-111 REMOVE ENGINE FUEL SHUTOFF VALVE 10-111

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Wrench, Open End, 1 5/8 Inch
Wrench, Open End, 1 1/2 Inch

Materials:
Cloths (E135)

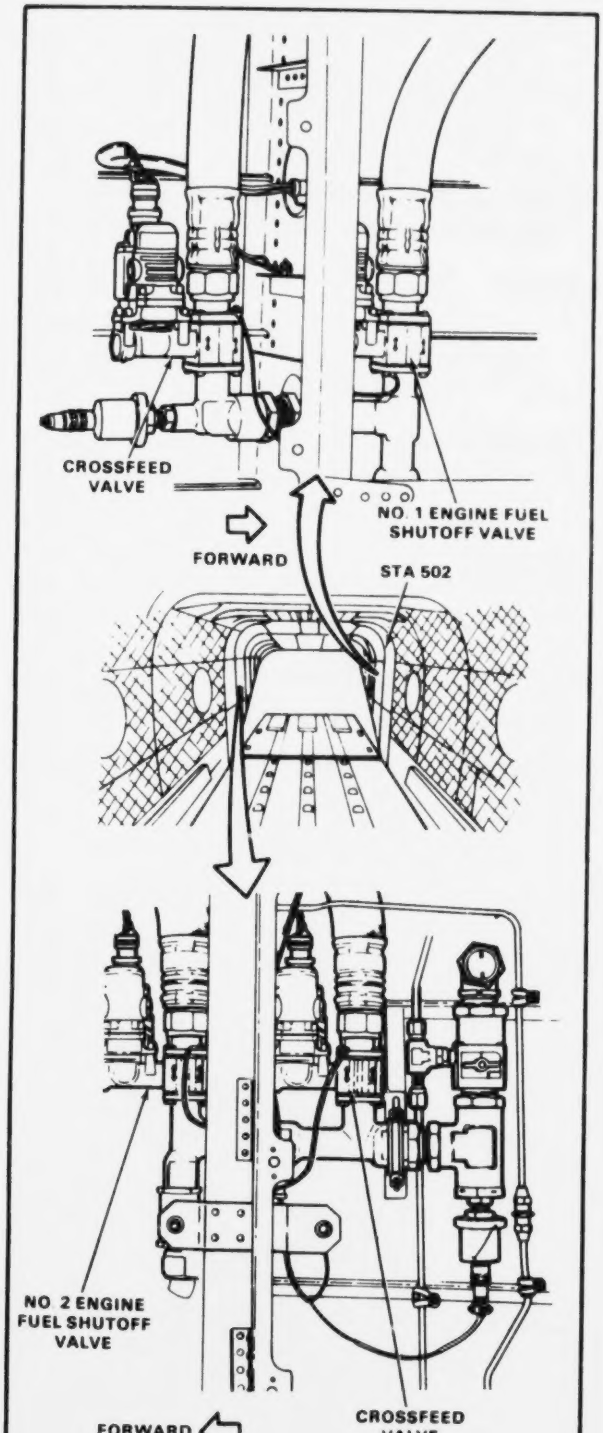
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


CROSSFEED VALVE
FORWARD
NO. 1 ENGINE FUEL SHUTOFF VALVE
STA 502
NO. 2 ENGINE FUEL SHUTOFF VALVE
FORWARD
CROSSFEED VALVE
20x51
D145-2871-SPA

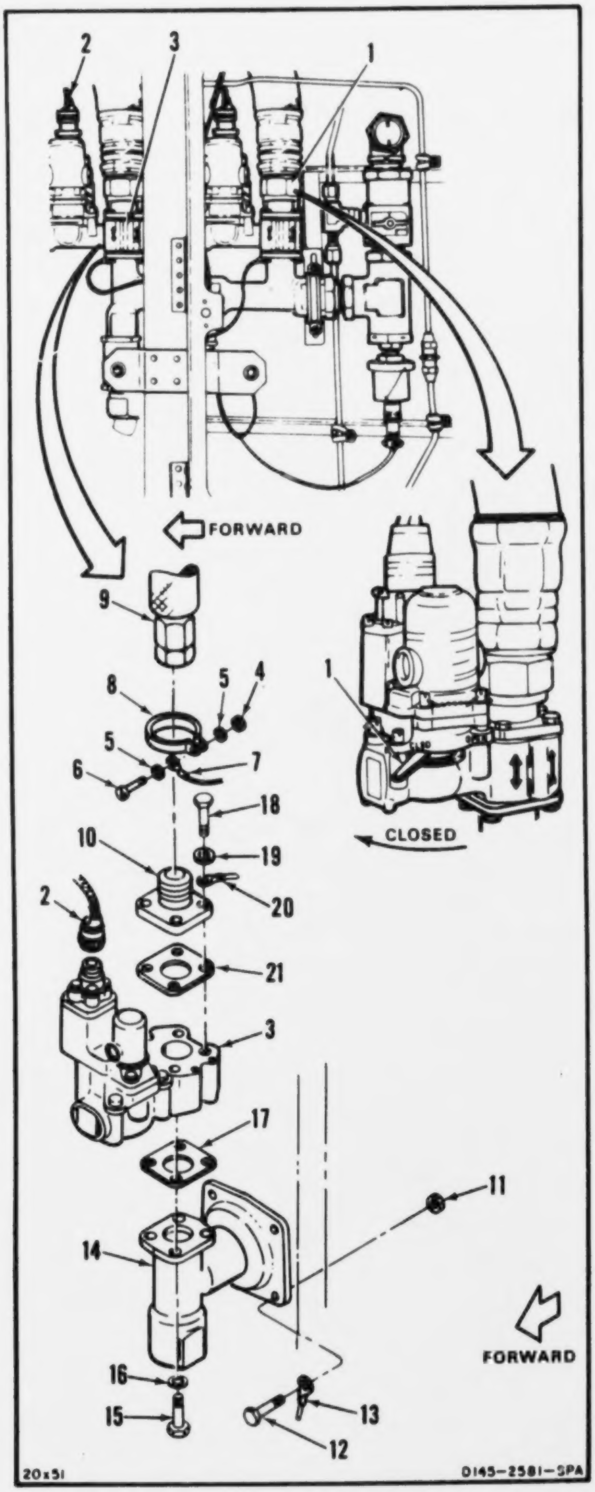
GO TO NEXT PAGE

10-111 REMOVE ENGINE FUEL SHUTOFF VALVE (Continued) 10-111

NOTE

There are two engine fuel shutoff valves. Procedure is same to remove either valve. No. 2 (right side) valve is shown here.

1. Make sure manual override crossfeed valve (1) is in CLOSED position.
2. **Disconnect electrical cable (2)** from valve (3).
3. **Remove** nut (4), two washers (5), screw (6), **electrical lead (7) and clip (8).**
4. **Disconnect hose (9)** from adapter (10). Plug hose.
5. **Remove** nut (11), bolt (12) and **electrical lead (13)** from flange of tee (14).
6. Remove lockwire, four bolts (15) and washers (16) from valve (3).
7. **Remove valve (3)** and packing (17). Use container for any spilled fuel.
8. Remove lockwire, four bolts (18), four washers (19) and electrical lead (20) from valve (3). **Remove adapter (10)** and packing (21).
9. Plug port in tee (14).
10. Wipe up spilled fuel. Use cloths (E135).

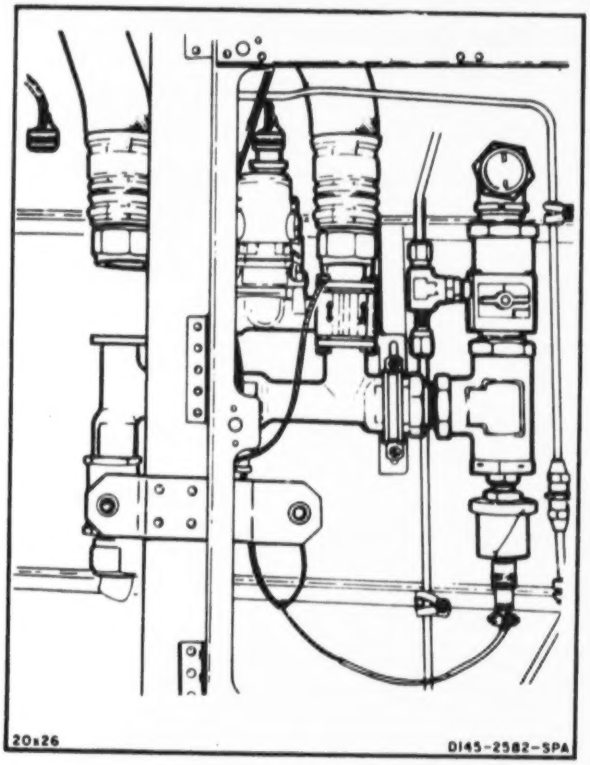

2
3
1
FORWARD
9
8
5
4
1
5
7
6
18
10
19
2
20
21
CLOSED
3
17
11
14
FORWARD
16
13
15
12
20x51
0145-2581-SPA

GO TO NEXT PAGE

10-111 REMOVE ENGINE FUEL SHUTOFF VALVE (Continued) 10-111

FOLLOW-ON MAINTENANCE:

None


20x26
D145-2582-SPA

END OF TASK

10-112 INSTALL ENGINE FUEL SHUTOFF VALVE 10-112

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 700 to 1600 Inch-Pounds
Crowfoot, 1 1/2-Inch
Crowfoot, 1 5/8-Inch

Materials:
Lockwire (E231)

Parts:
Packings

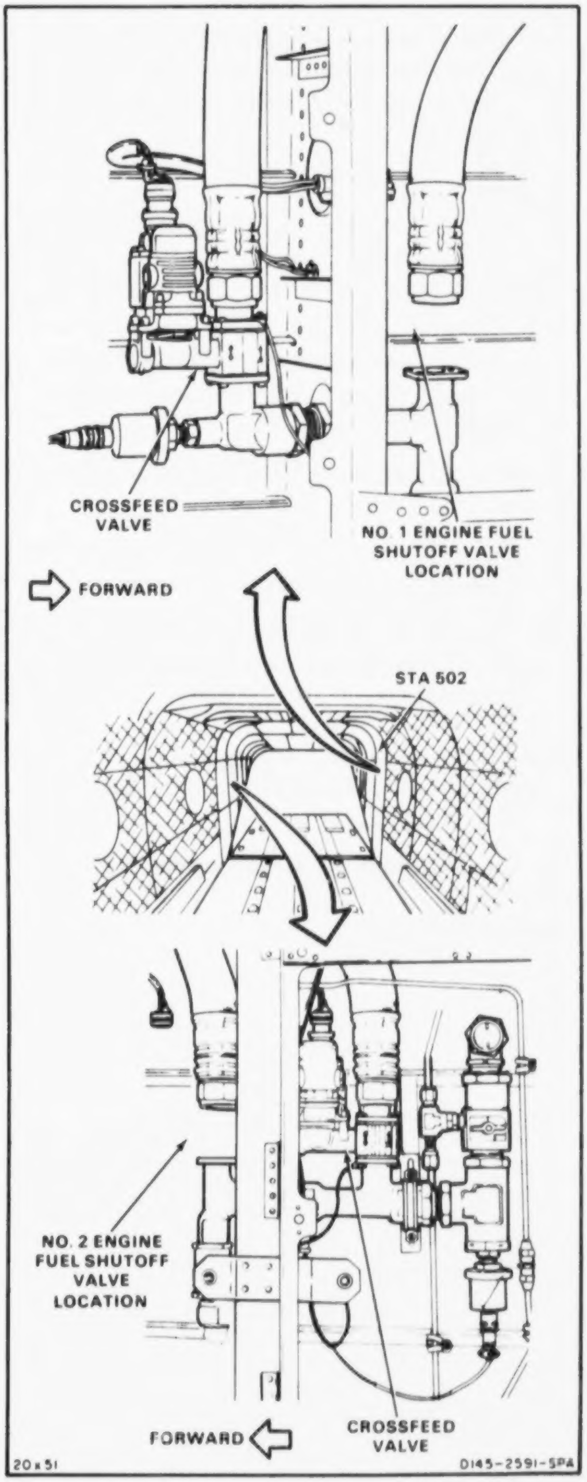
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

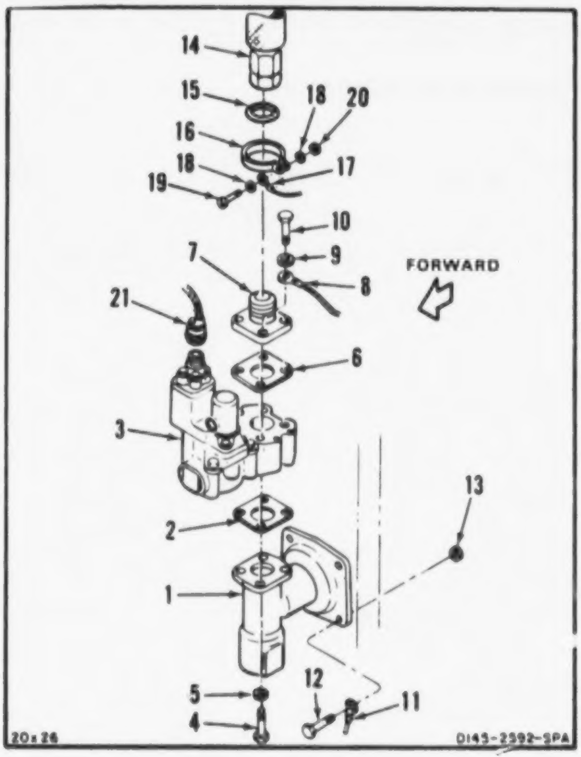
WARNING

All regulations and instructions for handling fuels shall be strictly observed.


CROSSFEED VALVE
NO. 1 ENGINE FUEL SHUTOFF VALVE LOCATION
FORWARD
STA 502
NO. 2 ENGINE FUEL SHUTOFF VALVE LOCATION
FORWARD
CROSSFEED VALVE
20x51
D145-2591-SPA

GO TO NEXT PAGE

10-112 INSTALL ENGINE FUEL SHUTOFF VALVE (Continued) 10-112



NOTE

There are two engine fuel shutoff valves. Procedure is same to install either valve. No. 2 (right side) valve is shown here.

1. Remove plug from tee (1).
2. **Position** packing (2) and **valve (3)** on tee (1). **Install four bolts (4)** and washers (5). Lockwire four bolts. Use lockwire (E231).
3. **Position** packing (6) and **adapter (7)** on valve (3). **Install electrical lead (8),** four washers (9) and **bolts (10).** Lockwire four bolts. Use lockwire (E231).
4. **Install electrical lead (11),** bolt (12) and nut (13) on flange of tee (1).
5. Remove plug from hose connector (14). Install packing (15) in hose connector.
6. **Connect hose connector (14)** to adapter (7). **Torque hose connector to 1125 inch-pounds.**
7. **Install clip (16), electrical lead (17),** two washers (18), screw (19) and nut (20) on hose connector (14).
8. **Connect electrical connector (21).**

INSPECT

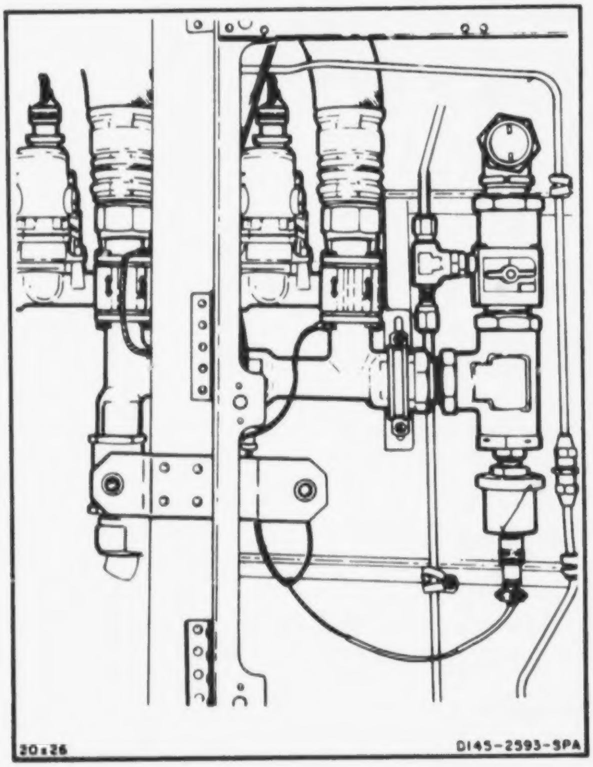
GO TO NEXT PAGE

10-112 INSTALL ENGINE FUEL SHUTOFF VALVE (Continued)

FOLLOW-ON MAINTENANCE:

Perform operational check of fuel system (TM 55-1520-240-T).

Bleed fuel system (Task 10-121).



END OF TASK

10-113 REMOVE FUEL CROSSFEED VALVE 10-113

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Wrench, Open End, 1 5/8-Inch
Wrench, Open End, 1 1/2-Inch

Materials:
Cloths (E135)

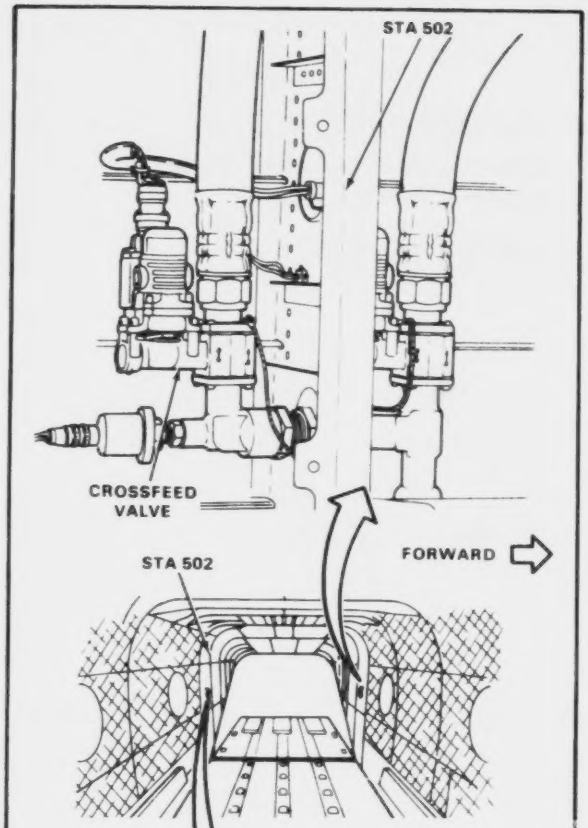
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Grounded Container, Two Quart

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


STA 502
CROSSFEED VALVE
FORWARD
STA 502
CROSSFEED VALVE
FORWARD
20x51
D145-2587-SPA

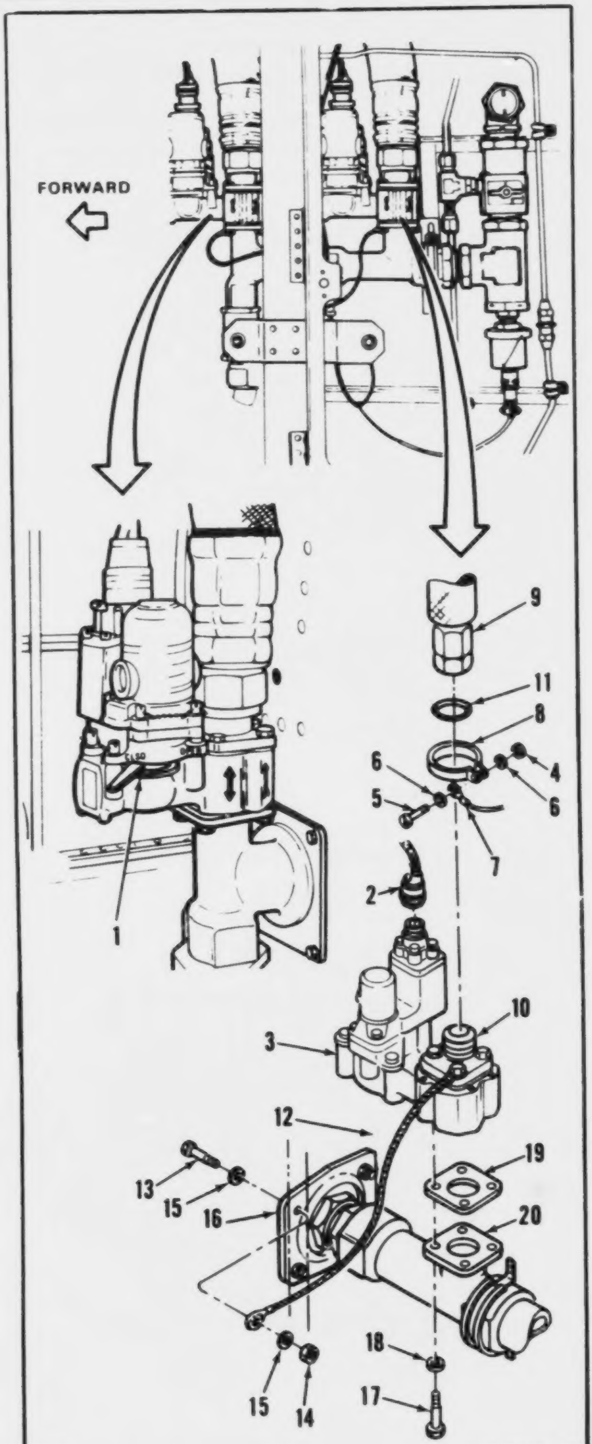
GO TO NEXT PAGE

10-113 REMOVE FUEL CROSSFEED VALVE (Continued)

NOTE

There are two fuel crossfeed valves. Procedure is same to remove either valve. No. 2 (right side) valve is shown here.

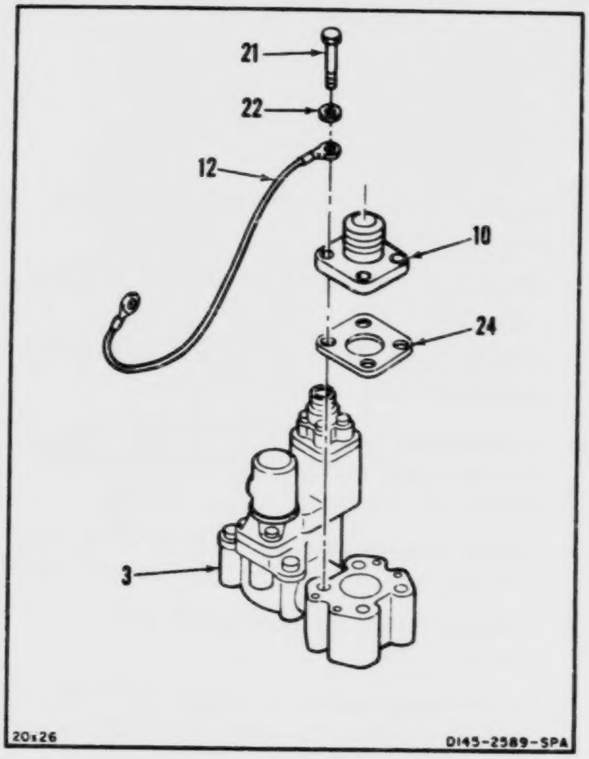
1. Make sure manual override crossfeed valve (1) is CLOSED.
2. **Disconnect electrical connector (2) from valve (3).**
3. **Remove nut (4),** screw (5), two washers (6), **electrical lead (7),** and clip (8).
4. **Disconnect hose (9)** from adapter (10). Remove packing (11). Use container for any spilled fuel. Plug hose.
5. **Remove electrical lead (12),** bolt (13), nut (14) and two washers (15) from adapter (16).
6. Remove lockwire, four bolts (17) and washers (18).
7. **Remove valve (3)** and packing (19) from tee (20). Plug hole in tee. Clean up any spilled fuel. Use cloths (E135).



GO TO NEXT PAGE

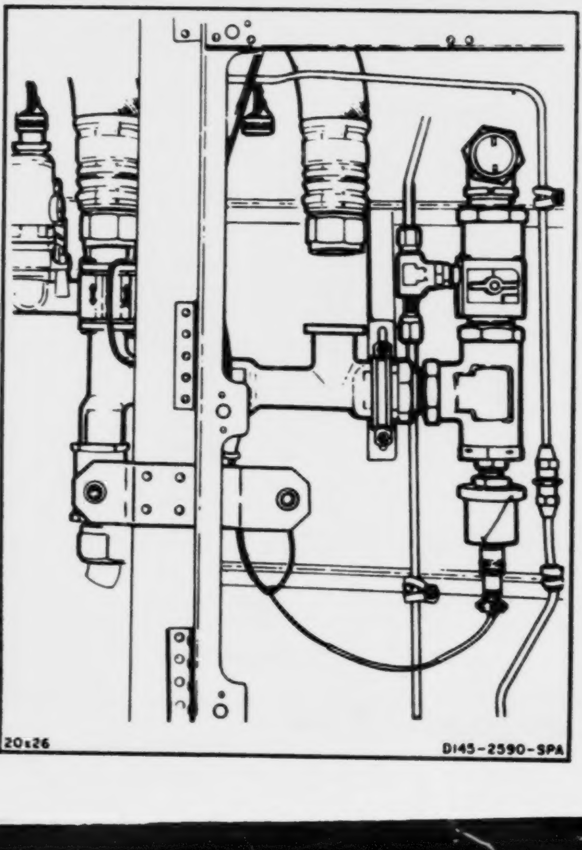
10-113 REMOVE FUEL CROSSFEED VALVE (Continued) 10-113

8. **Remove** lockwire, four bolts (21), four washers (22) and **electrical lead (12)** from valve (3).
9. **Remove adapter (10)** and packing (24) from valve (3).
10. Clean up spilled fuel. Use cloths (E135).


21
22
12
10
24
3
20x26
D145-2589-SPA

FOLLOW-ON MAINTENANCE:

None


20x26
D145-2590-SPA

END OF TASK

10-114 INSTALL FUEL CROSSFEED VALVE 10-114

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 700-1600 Inch-Pounds
Crowfoot Attachment, 11/2-Inch

Materials:
Lockwire (E231)

Parts:
Packings

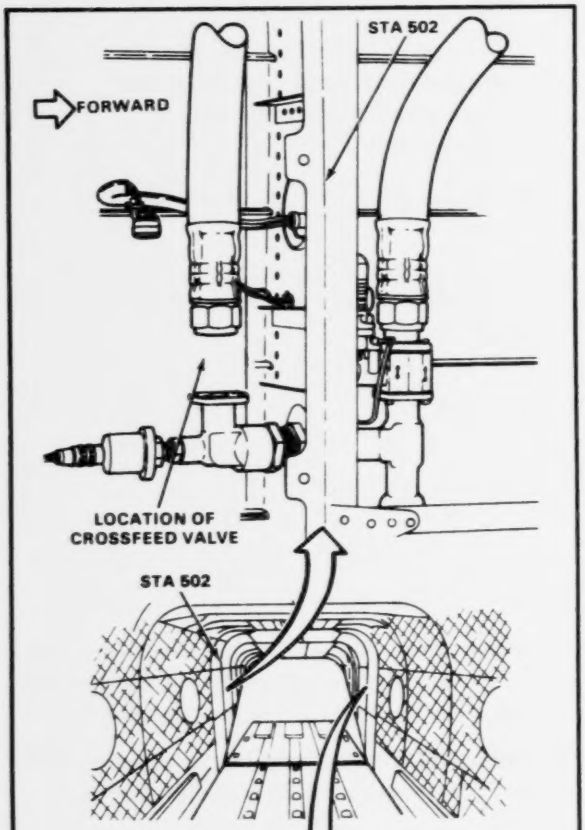
Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

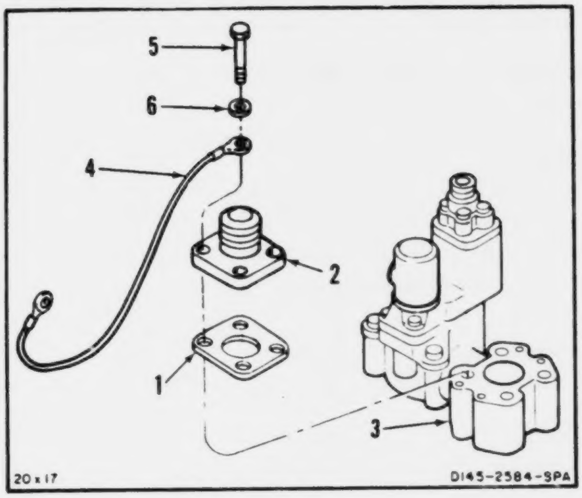
WARNING

All regulations and instructions for handling fuels shall be be strictly observed.


STA 502
FORWARD
LOCATION OF CROSSFEED VALVE
STA 502
LOCATION OF CROSSFEED VALVE
FORWARD
20x51
D145-2583-SPA

GO TO NEXT PAGE

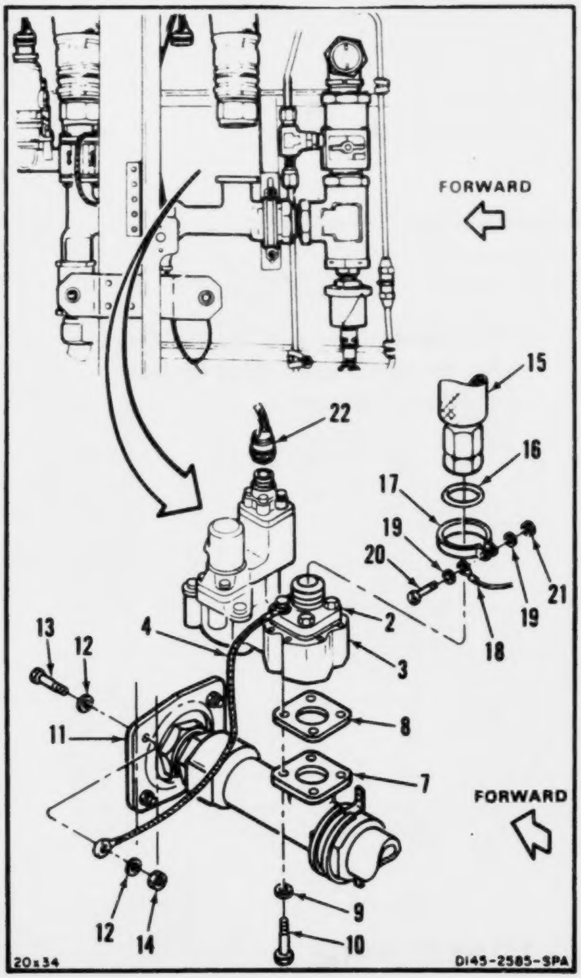
10-114 INSTALL FUEL CROSSFEED VALVE (Continued) 10-114


5
6
4
2
1
3
20 x 17
D145-2584-SPA

NOTE

There are two fuel crossfeed valves. Procedure is same to install either valve. No. 2 (right side) valve is shown here.

1. **Position** packing (1) and **adapter (2)** on valve (3).
2. **Install electrical lead (4), four bolts (5)** and washers (6). Lockwire bolts. Use lockwire (E231).


FORWARD
15
22
16
17
19
20
21
19
18
4
2
3
13
12
11
8
7
FORWARD
9
10
12
14
20x34
D145-2585-SPA

3. Remove plug from tee (7).
4. **Position packing (8) and valve (3)** on tee (7). **Install** four washers (9) and **bolts (10).** Lockwire bolts (10). Use lockwire (E231).
5. **Install electrical lead (4)** on adapter (11) with two washers (12), bolt (13), and nut (14).
6. Remove plug from hose connector (15). Install packing (16) in hose connector.
7. **Connect hose connector (15)** to adapter (2). **Torque hose connector to 1125 inch-pounds.**
8. **Install clip (17), electrical lead (18),** two washers (19), screw (20) and nut (21).
9. **Connect electrical connector (22).**

GO TO NEXT PAGE

10-114 INSTALL FUEL CROSSFEED VALVE (Continued) 10-114

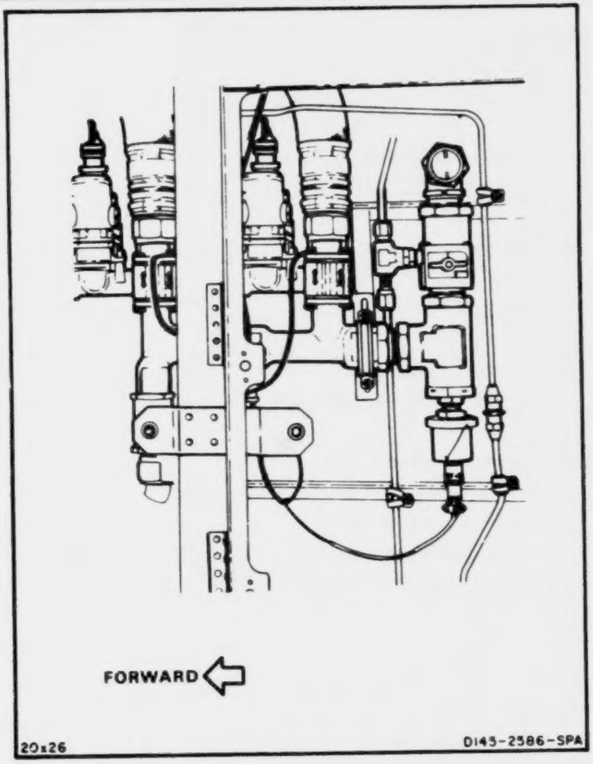
INSPECT

FOLLOW-ON MAINTENANCE:

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (TM 55-1520-240-T).

Check for leaks (Task 10-4).


FORWARD
20x26
D143-2586-SPA

END OF TASK

10-115 REMOVE FUEL PUMP RELAY 10-115

INITIAL SETUP

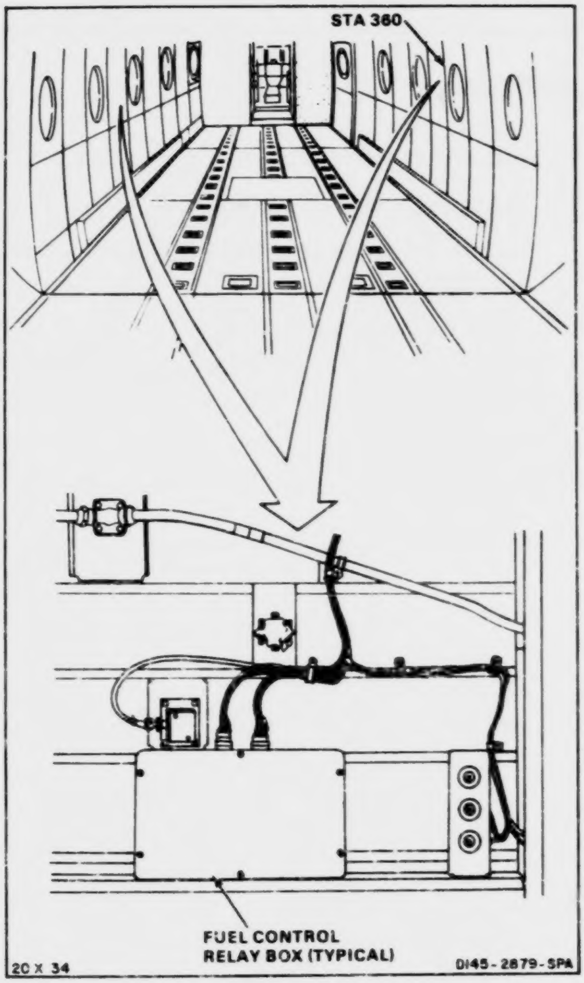
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Paper Tags (E264)
Tape (E385)

Personnel Required:
67U10 Medium Helicopter Repairer

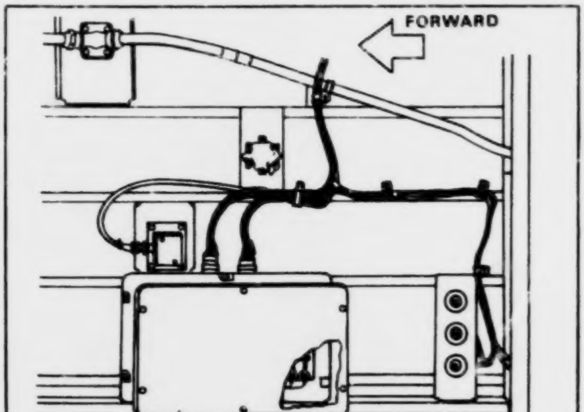
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Side Acoustical Blanket Removed Between Sta. 320 and 360 (Task 2-208)


STA 360
FUEL CONTROL RELAY BOX (TYPICAL)
20 X 34
D145-2879-SPA

NOTE

There are four fuel pump relays on each side. Procedure is same to remove any relay. Aft right side relay is shown here.

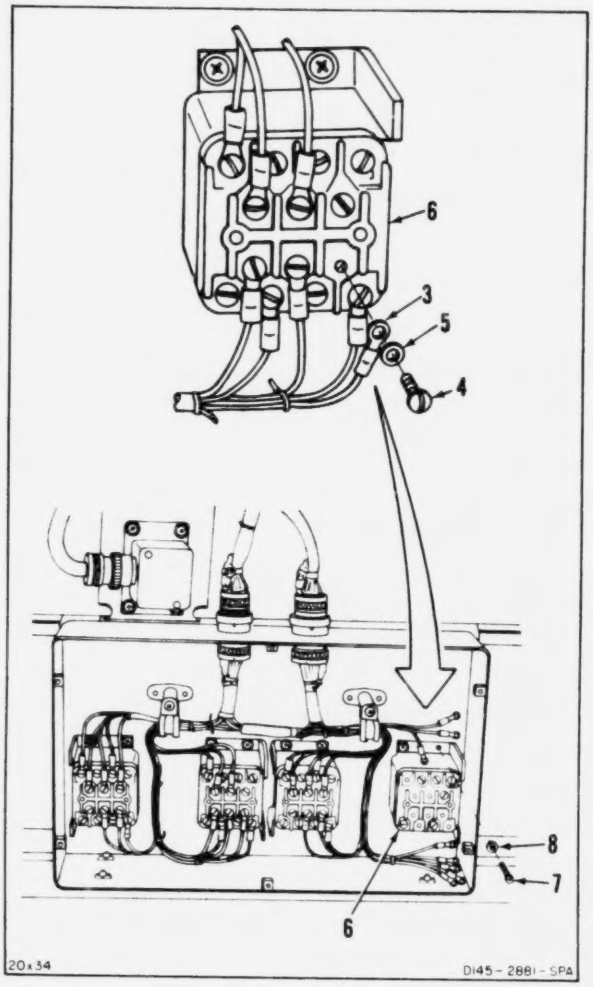
1. Remove six screws (1) from cover (2). **Remove cover.**

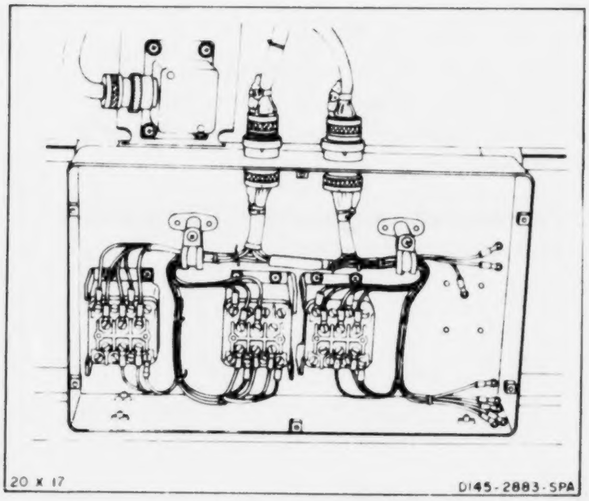

FORWARD
2
1
20 X 17
D145-2880-SPA

GO TO NEXT PAGE

10-115 REMOVE FUEL PUMP RELAY (Continued) 10-115

2. Tag eight wires (3). Remove eight screws (4) and washers (5). **Disconnect eight wires (3)** from relay (6). Tape wire ends. Use tape (E385).
3. Remove four screws (7) and washers (8). **Remove relay (6).**


6
3
5
4
8
7
6
20x34
D145-2881-SPA


20 X 17
D145-2883-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

10-116 INSTALL FUEL PUMP RELAY 10-116

INITIAL SETUP

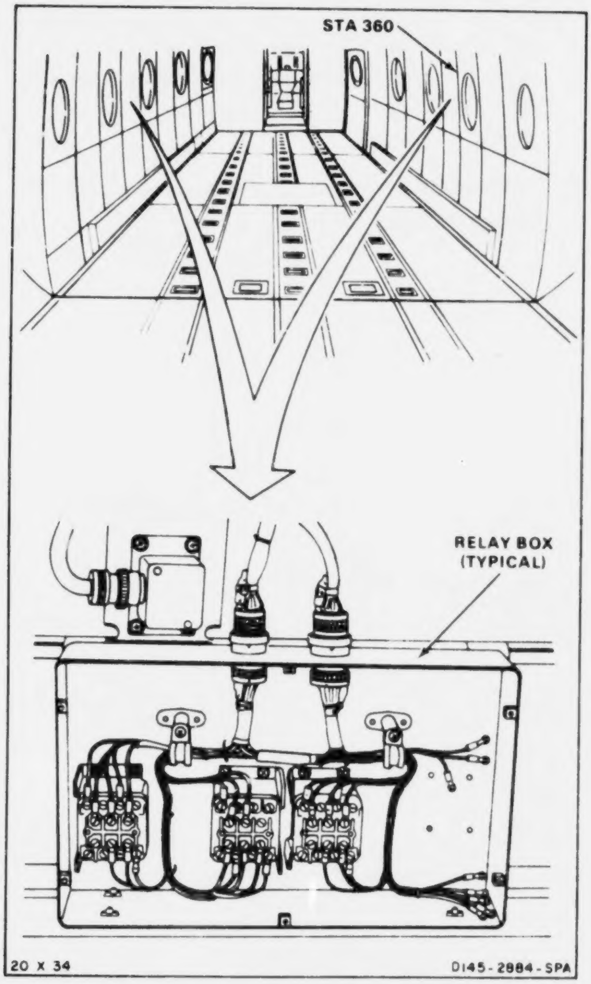
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

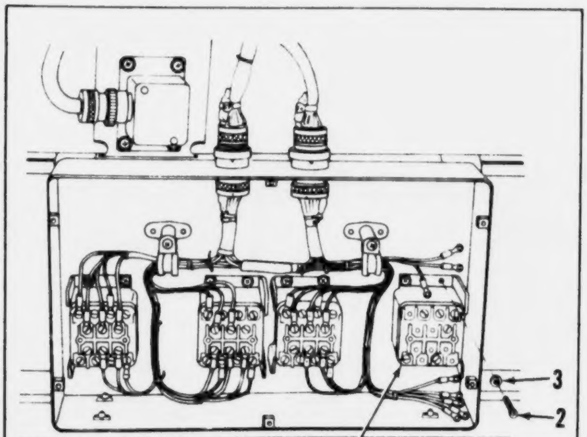
References:
TM 55-1520-240-23P


STA 360
RELAY BOX (TYPICAL)
20 X 34
D145-2884-SPA

NOTE

There are four fuel pump relays on each side. Procedure is same to install any relay. Aft right side relay is shown here.

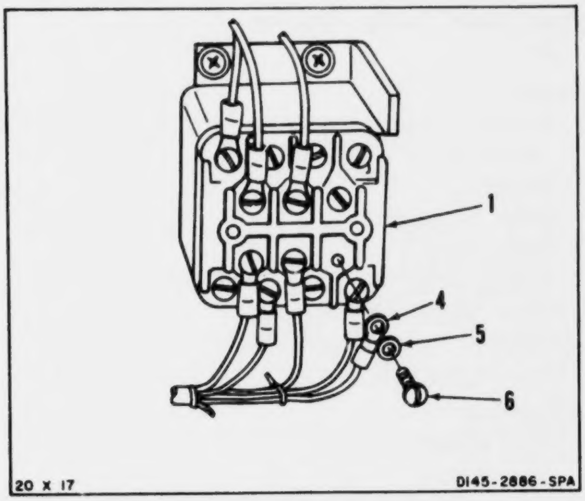
1. **Position fuel pump relay (1). Install four screws (2)** and washers (3).


3
2
1
20 X 17
D145-2885-SPA

GO TO NEXT PAGE

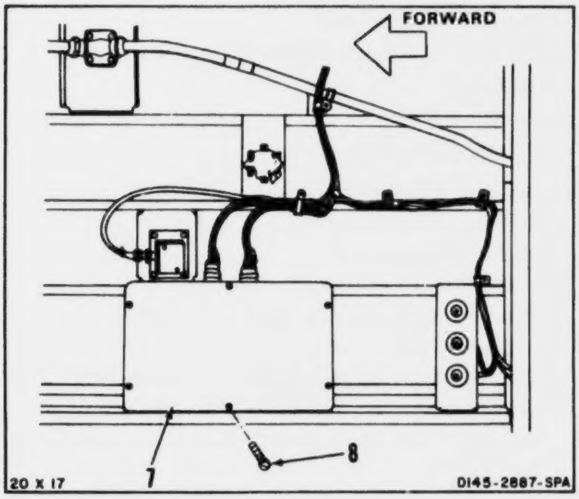
10-116 INSTALL FUEL PUMP RELAY (Continued) 10-116

2. Remove tape and **connect eight wires (4)** to relay (1) as tagged. Install eight washers (5) and screws (6). Remove tags.


1
4
5
6
20 X 17
D145-2886-SPA

INSPECT

3. **Install cover (7)** and six screws (8).

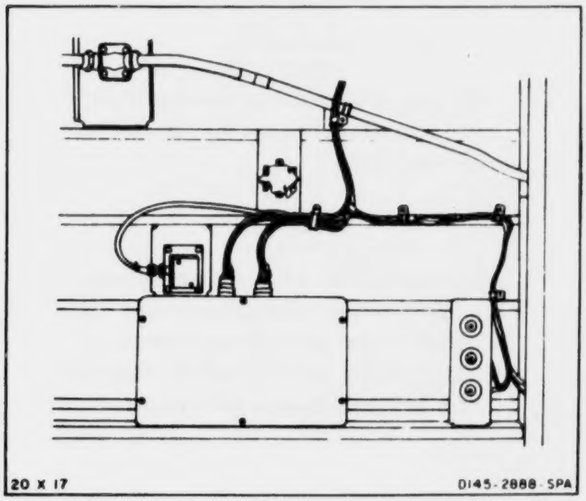

FORWARD
8
7
20 X 17
D145-2887-SPA

INSPECT

FOLLOW-ON MAINTENANCE:

Perform operational check of related fuel boost pump(s) (TM 55-1520-240-T).

Install side acoustical blanket between sta 320 and 360 (Task 2-210)


20 X 17
D145-2888-SPA

END OF TASK

10-117 PRESSURE TEST VENT SYSTEM 10-117

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic Tool Kit, NSN 5180-00-323-4692
Stopwatch
Valve, Shutoff
Valve, Vent
Torque Wrench, 700 to 1600 Inch-Pounds
Gage, 60 Psi
Nitrogen Supply with Regulator
Test Plug (E55)

Materials:

Soap (E353)
Brush (E85)
Conical Flared Seals VSF1015A16B

Personnel Required:

Medium Helicopter Repairer
Inspector

References:

TM 55-1520-240-23P

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Affected Side of Helicopter Defueled (Task 10-34 or 10-35)
Tank Forward Access Door Removed (Task 10-51 for Main Tank or 10-79 for Aft Tank)
Forward Tank Aft Access Door Removed (Task 10-24)

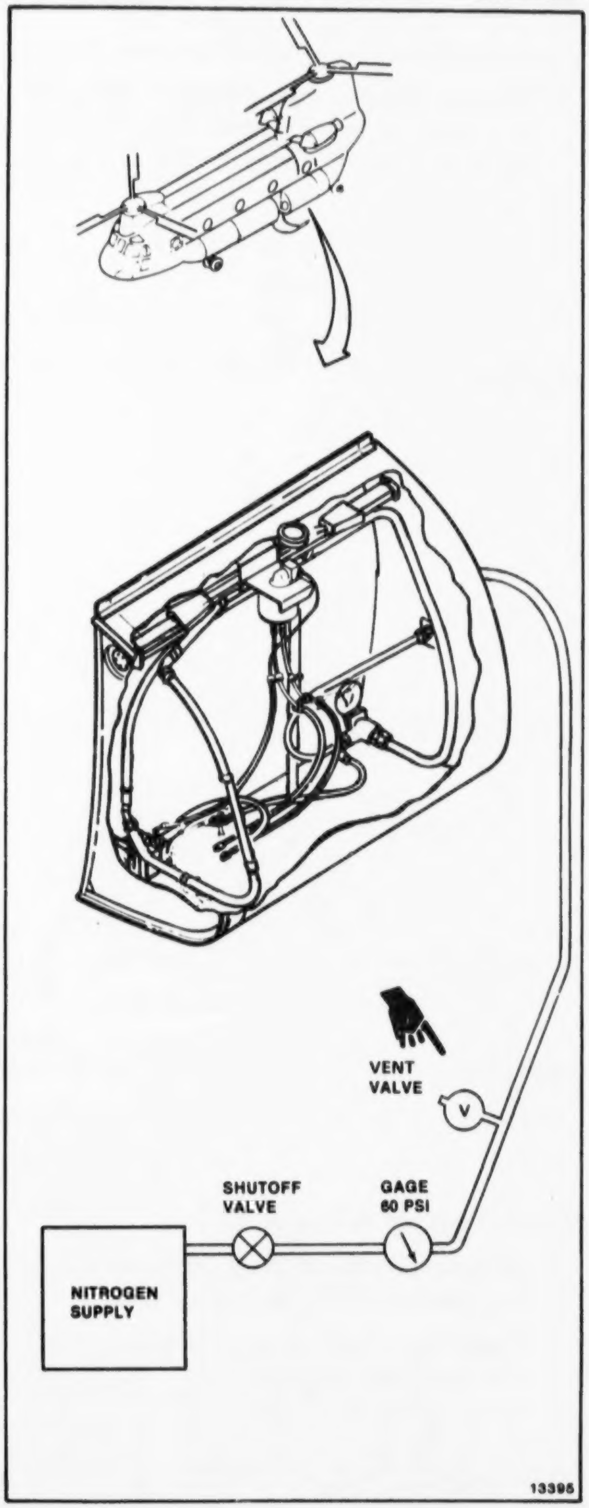
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

CAUTION

Do not allow elbows or nipples to turn when disconnecting fuel hoses from aft access panel. Otherwise, access panel fittings can fail and cause blockage.



10-117 PRESSURE TEST VENT SYSTEM (Continued) 10-117

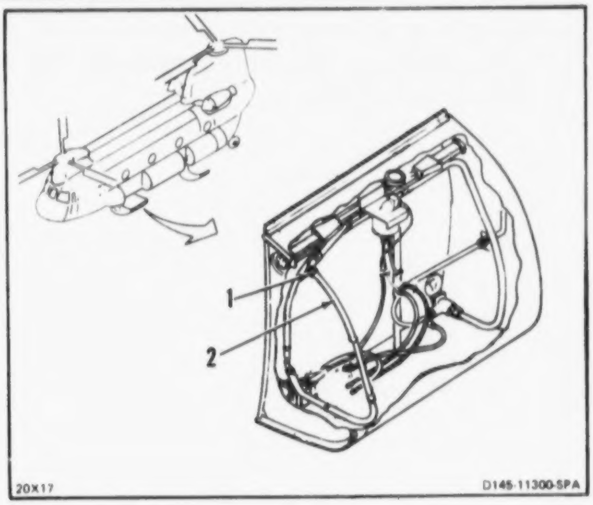
CAUTION

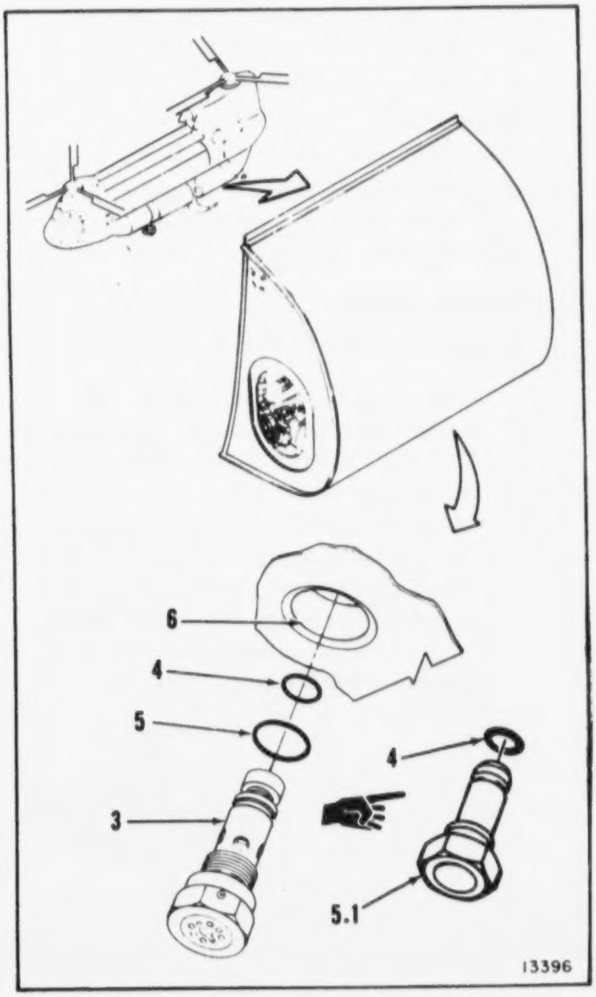
Do not puncture or scratch lining of fuel tank. If lining is broken, fuel penetrates and activates self-sealing layers. Activated layers swell and trap fuel. Activated green spongy material also contaminates fuel system. This makes it necessary to replace fuel tank and flush fuel system.

NOTE

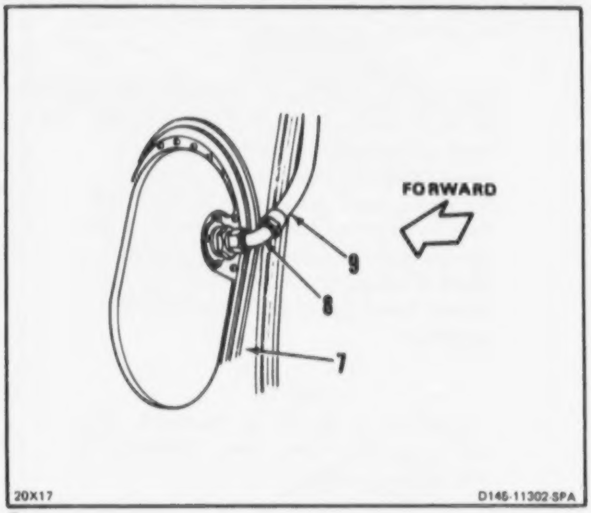
Procedure is similar to pressure test vent system in any tank. Differences are noted in text.

1. Hold fitting (1) with wrench and **disconnect hose (2). Install plug** in hose.
2. **Remove** drain **valve (3)** with packings (4 and 5). **Install** packing (4) on plug (E55) (5.1) and install **plug** in port (6).

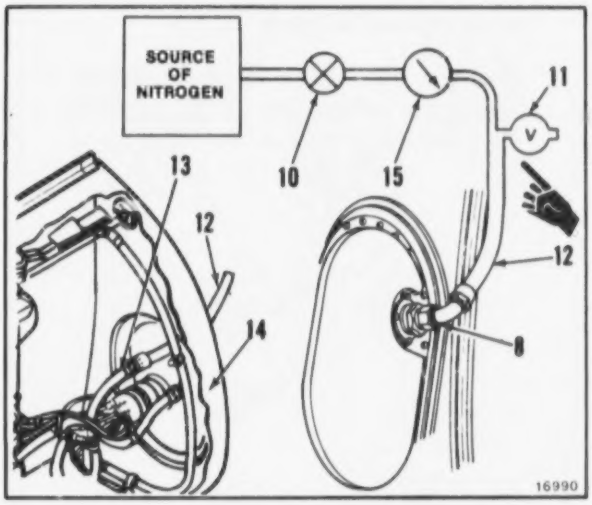




3. On main or aft tank (7) only, hold elbow (8) with wrench and **disconnect hose (9). Install plug in hose.**



4. Make sure shutoff valve (10) and vent valve (11) are closed. **Connect hose (12)** from test setup to elbow (8) on main or aft tank (7), or hose (13) in forward tank (14).
5. Slowly **open shutoff valve (10) until gage (15) indicates** 20 psi. Close valve.
6. **Wait 5 minutes** and check gage (15). If gage indicates 20 psi, go to step 8. If gage indicates less than 20 psi, go to step 7.



CHECK FOR LEAKS

7. **Check for leaks** as follows:
   a. Check test setup upstream and downstream of valves (10 and 11), and gage (15). Use mixture of soap (E353) and water, and brush (E85). Allow system to remain under pressure for 15 minutes. If bubbles grow in size, connection is leaking. Tighten leaking connections or replace packings as needed. Also check all joints, seams, and cast components. Repeat steps 5 and 6.

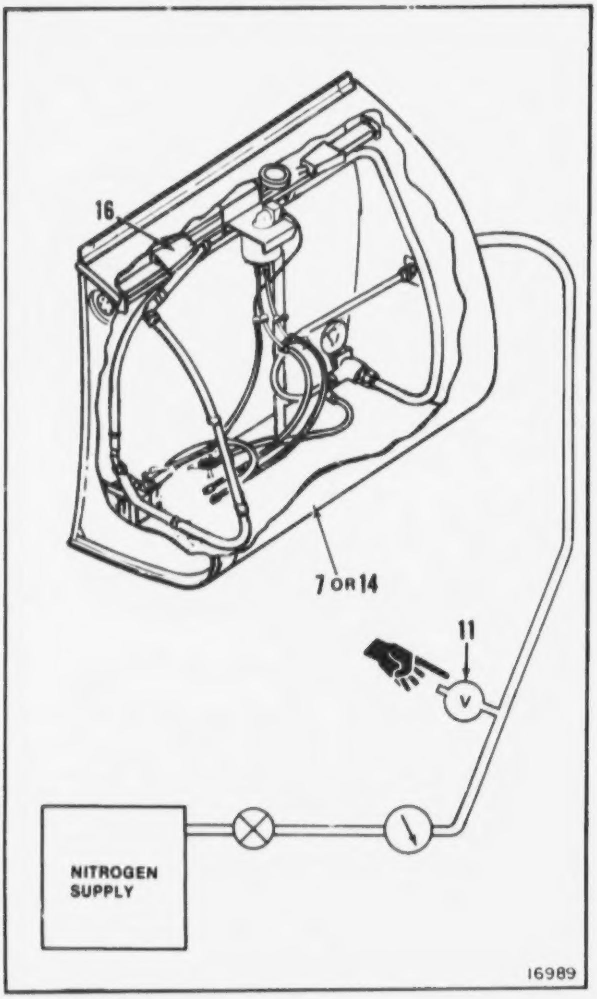
GO TO NEXT PAGE

10-117 PRESSURE TEST VENT SYSTEM (Continued) 10-117

b. **Check vent system (16) inside tank (7 or 14).** Apply soap mixture, as in step 7.a., to all connections. Secure any loose connections.

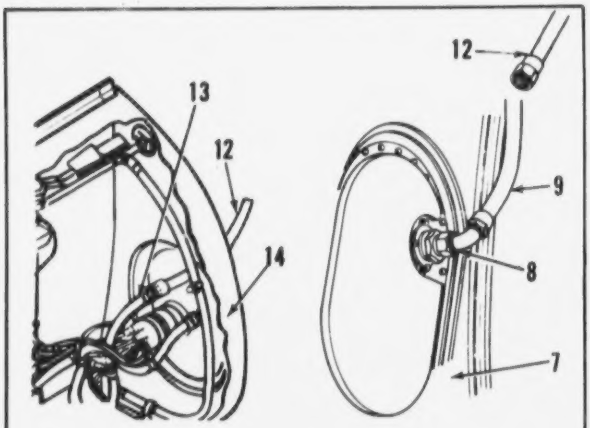
c. If connections are still leaking, use conical seals as required.

8. Open relief valve (11) to **reduce pressure to 0 psi.**


16
7 OR 14
11
V
NITROGEN SUPPLY
16989

9. On main or aft tank (7) only, hold elbow (8) with wrench and **disconnect test hose (12).** Remove plug and connect hose (9) to elbow.
10. On forward tank (14) only, disconnect test hose (12) from hose (13).

INSPECT


12
13
12
14
9
8
7
20X17
D146-11304-SPA

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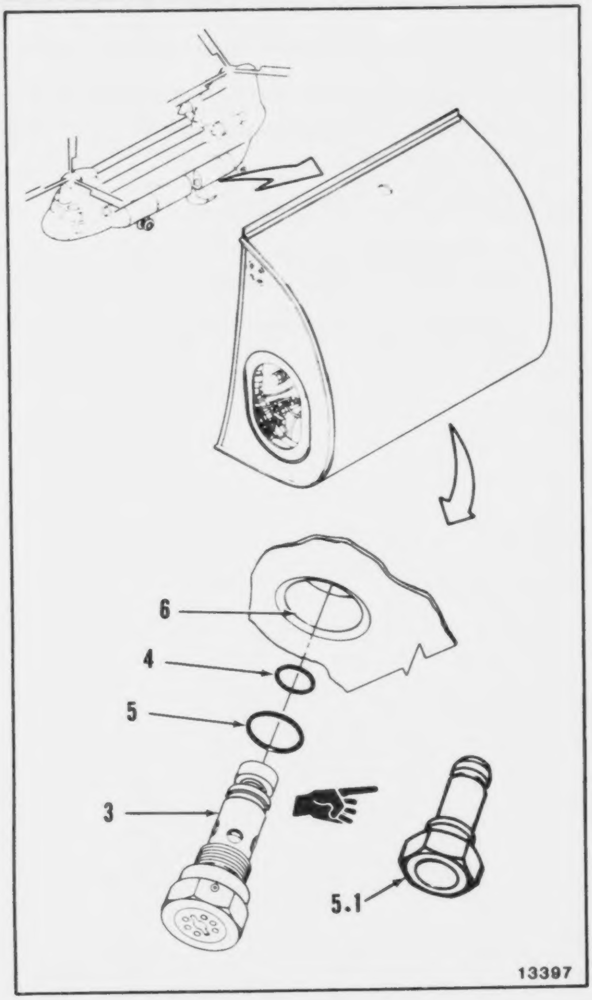
10-117 PRESSURE TEST VENT SYSTEM (Continued) 10-117

11. **Remove plug** (E55) (5.1) from port (6). Install packings (4 and 5) on drain valve (3). **Install drain valve in port.**

INSPECT



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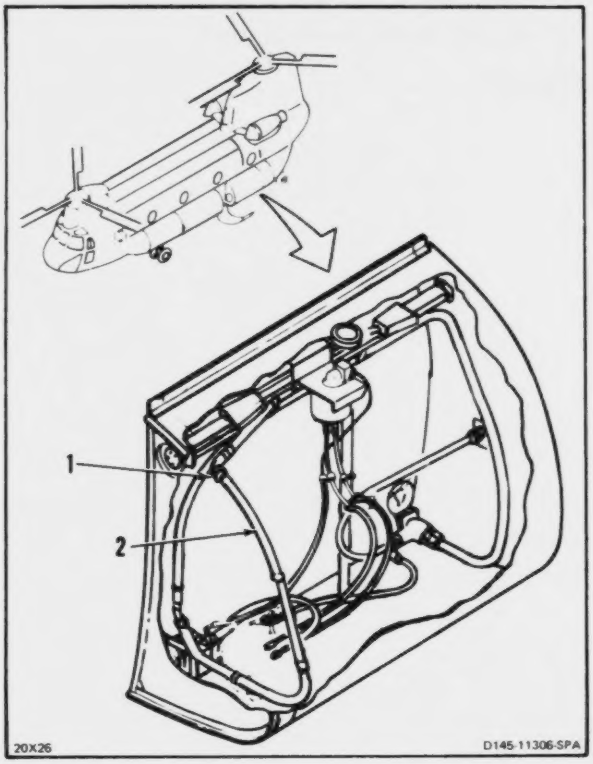
10-117 PRESSURE TEST VENT SYSTEM (Continued) 10-117

12. **Remove plug** from hose (2). **Connect hose to fitting (1). Torque connection to 1150 inch-pounds.**

FOLLOW-ON MAINTENANCE:

Install forward access door on main or aft tank (Task 10-52 or 10-80).

Install aft access door on forward tank (Task 10-25).



END OF TASK

10-118 VENT SYSTEM FLOW TEST 10-118

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Test Equipment (2TE414P0200-8)
Source of Compressed Air, 100 psi
(2) 3/4-Inch Hoses
Stopwatch

Materials:
None

Personnel Required:
67U20 Medium Helicopter Repairer
67U30 Inspector

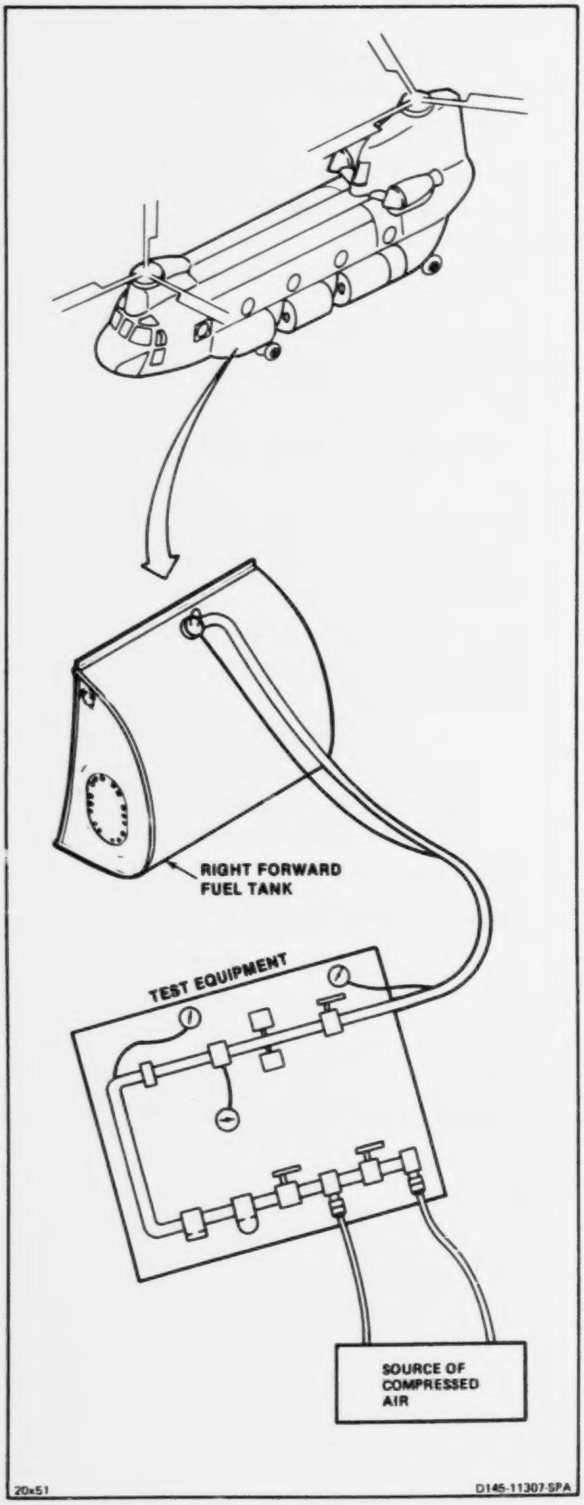
References:
Task 10-24
Task 10-25
Task 10-51
Task 10-52
Task 10-79
Task 10-80

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Affected Side of Helicopter Defueled (Task 10-34 or 10-35)

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.


RIGHT FORWARD FUEL TANK
TEST EQUIPMENT
SOURCE OF COMPRESSED AIR
20x51
D145-11307-SPA

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10-118 VENT SYSTEM FLOW TEST (Continued) 10-118

NOTE

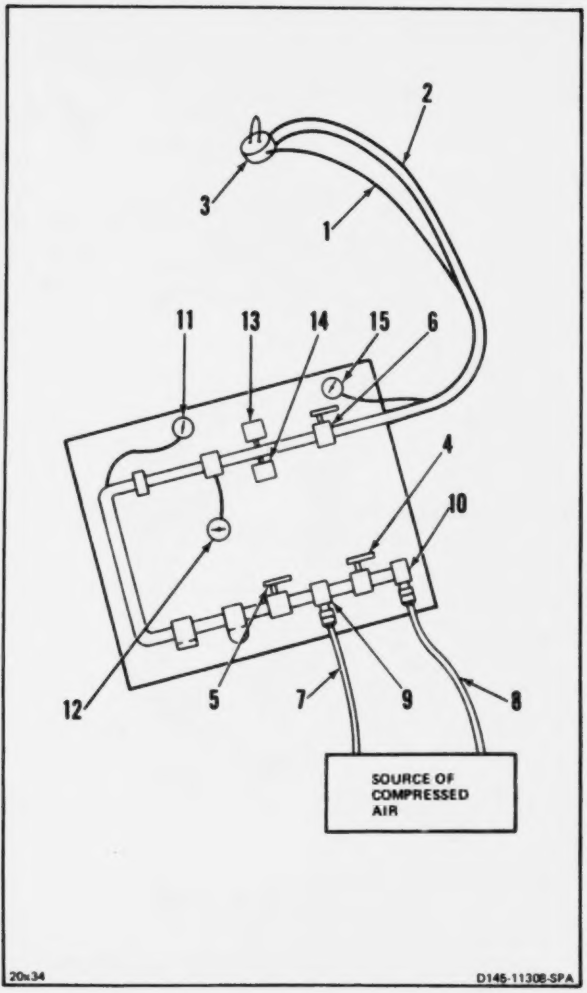
Procedure is same to test any fuel tank. Test of No. 1 (left) forward fuel tank is shown.

1. **Straighten hoses (1 and 2) to plug (3).**
2. **Close valves (4 and 5).**
3. **Open valve (6).**
4. **Connect two hoses (7 and 8)** to fittings (9 and 10).
5. **Open valves (4 and 5).**
6. Check gage (11). **Gage shall read 24 to 30 psi.**
7. Check gage (12). **Gage shall read 1 to 3 psi.**
8. Slowly **close valve (6).** Check gage (12). **Two valves (13 and 14) shall open when gage indicates 5 psi.**
9. **Gage (12) shall indicate 6 psi** with valve (6) closed. **Two valves (13 and 14) shall be venting equally.**

WARNING

Do not continue test if pressure exceeds 6 psi. Damage to personnel and equipment could occur.

10. **Open valve (6).**
11. **Close valves (4 and 5).**
12. Check gage (15). **Gage shall read 0 psi.**


2
3
1
11
13
14
15
6
4
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12
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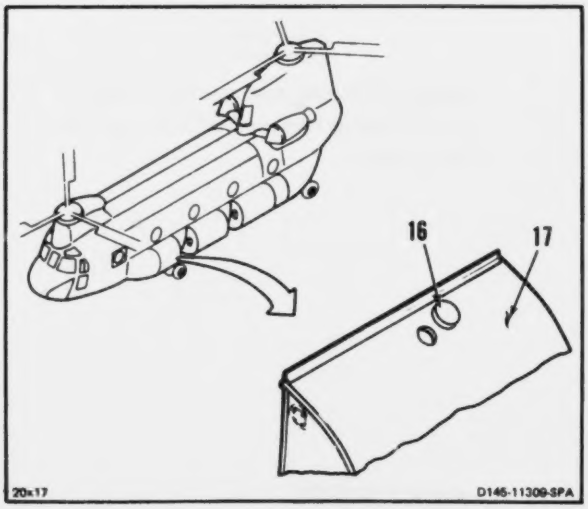
8
SOURCE OF COMPRESSED AIR
20x34
D145-11308-SPA

13. **Remove cap (16)** from fuel tank (17).


16
17
20x17
D145-11309-SPA

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10-118 VENT SYSTEM FLOW TEST (Continued) 10-118

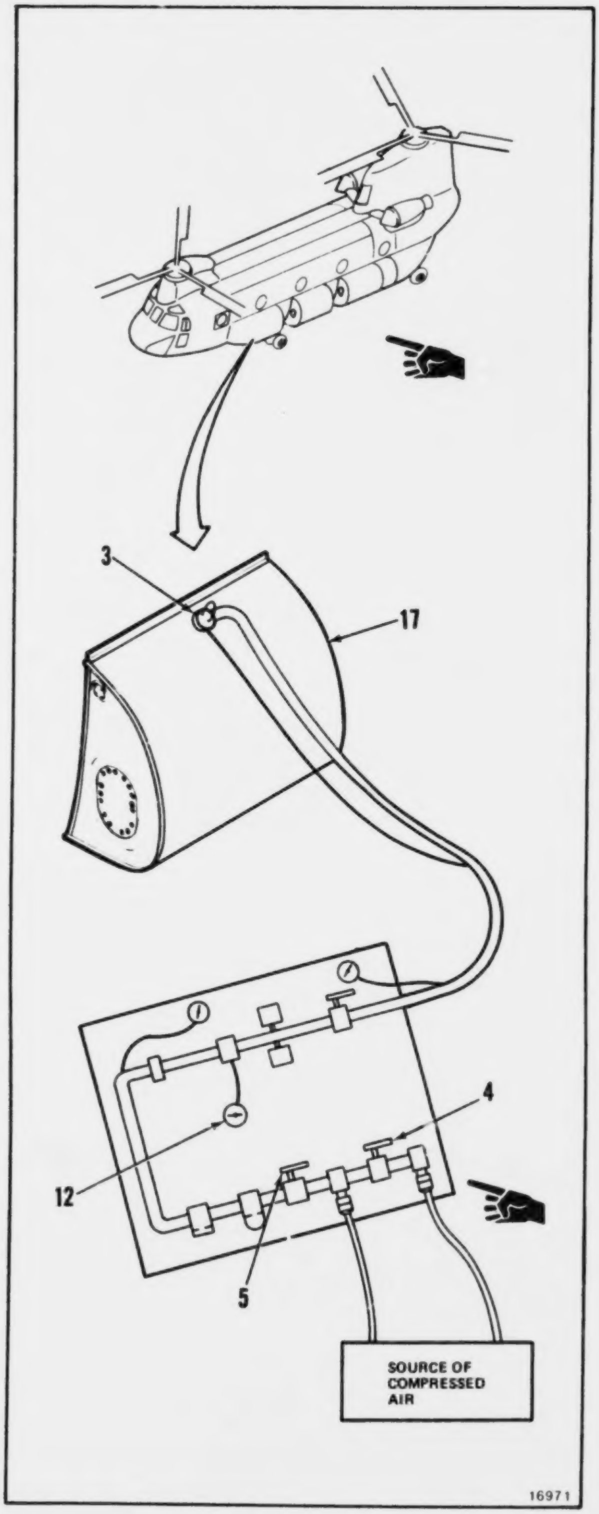
14. **Install plug (3)** in gravity fill port of fuel tank (17).

15. **Open valve (4).**

CAUTION

Test equipment must be watched closely to prevent damage to aircraft if vent system is blocked. Vent system blockage will cause pressure to rise quickly and damage will occur.

16. Slowly **open valve (5)** while watching gage (12). If gage reads above 3 psi, close valve and go to step 17. If gage does not read above 3 psi, go to step 19.



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10-118 VENT SYSTEM FLOW TEST (Continued) 10-118

17. **Check for blockage** as follows:

    a. Check vent breakaway fitting (18) at aft end of tank (17). Replace fitting, if needed. Repeat step 16.

    b. At main or aft tank only, remove tank forward access door (Task 10-51 or 10-79). At forward tank only, remove aft access door (Task 10-24).

    c. Check vent system hoses (18) and tubes (19) for kinks. Replace kinked tube or hose.

    d. If hoses (18) or tubes (19) are not kinked, remove each hose or tube until blockage source is located. Install hoses or tubes removed for blockage check.

    e. At main or aft tank only, install forward access door (Task 10-52 or 10-80). At forward tank only, install aft access door (Task 10-25).

18. **Repeat step 16.**

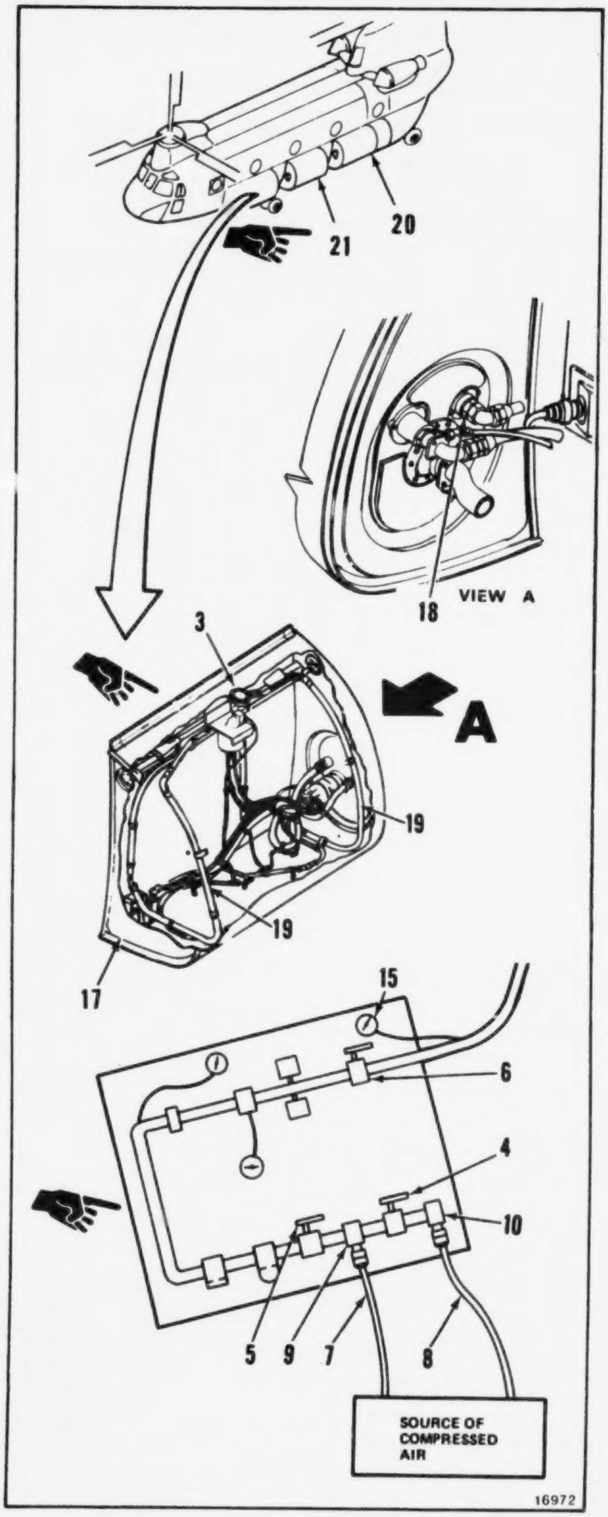
19. With valve (5) open, **wait** **1-minute.** **Check gage (15).** For forward (17) or aft (20) tanks only, if gage reads between 1.25 and 2.25 psi go to step 20. For main tank (21) only, if gage reads between 1.5 and 2.5 psi, go to step 20. If gage reading is not within these limits, repeat step 17.

20. Slowly **close valves (4 and 5).**

21. **Close valve (6).**

22. Check gage (15). When gage reads 0 psi **remove plug (3).**

23. **Disconnect two hoses (7 and 8)** from two fittings (9 and 10).



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10-118 VENT SYSTEM FLOW TEST (Continued) 10-118

24. **Install cap (16)** in fuel tank (17).

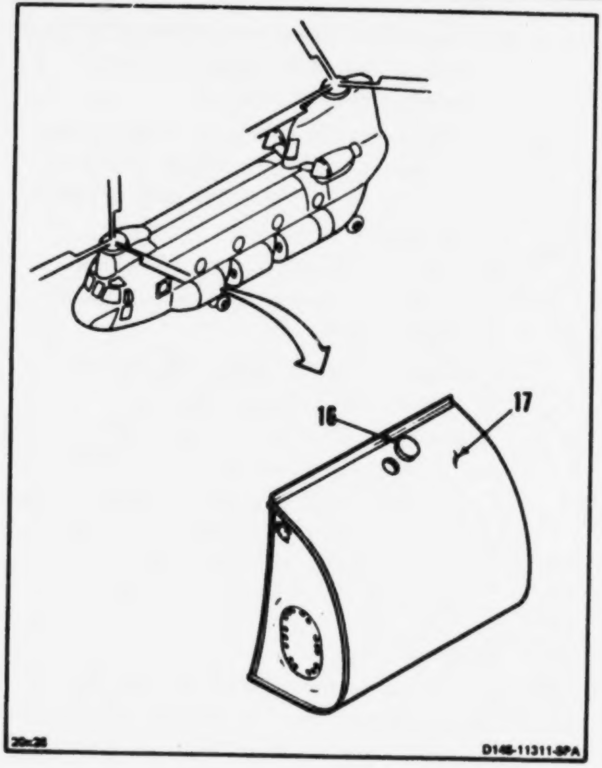
FOLLOW-ON MAINTENANCE:

Refuel helicopter (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of affected fuel system (TM 55-1520-240-T).

Inspect for leaks (Task 10-22 main tank, Task 10-27 forward tank, Task 10-32 aft tank).



END OF TASK

10-119 TEST PRESSURE REFUELING SYSTEM FOR LEAKS 10-119

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic Tool Kit, NSN 5180-00-323-4692
Nitrogen Supply with Regulator
Shutoff Valve
Vent Valve
Gage, 120 Psi with 5 Psi Graduations
Stopwatch
Closure Plates, 3 each, (Appx E-17)

Materials:
Cloths (E135)
Soap (E353)
Brush (E85)

Parts:
Plug, AN806-8D
Gaskets, BACG10AD (4)

Personnel Required:
Medium Helicopter Repairer
Inspector

References:
Appendix E
TM 55-1520-240-T
TM 55-1500-204-25/1

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Forward Landing Gear Access Panel Open (Task 2-2)
Helicopter Defueled (Task 10-34 or 10-35)
Aft Intertank Pod Panel Opened (Task 2-2)
Test Setup
Grounded Two Quart Container

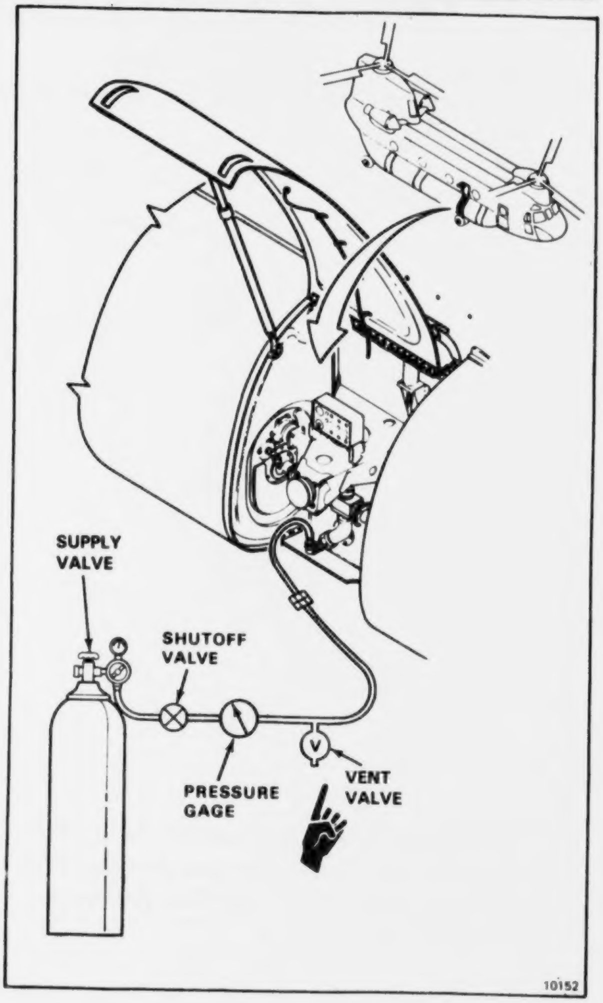
General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

CAUTION

Do not allow elbows or nipples to turn when disconnecting fuel hoses from access panel. Otherwise, access door fittings can fail and cause blockage.



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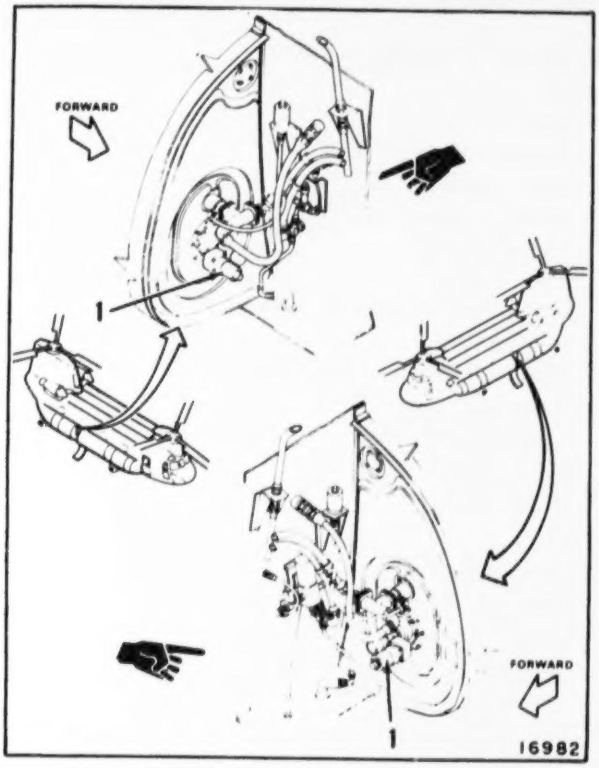
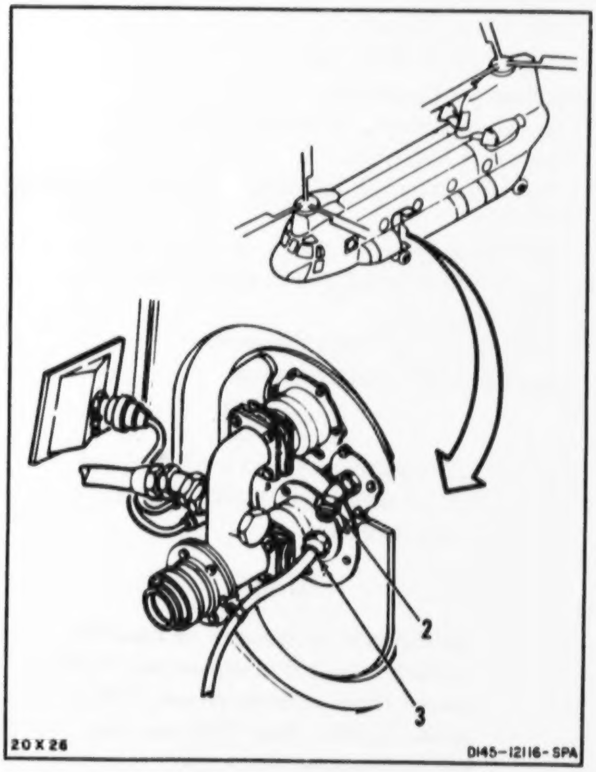
10-119 TEST PRESSURE REFUELING SYSTEM FOR LEAKS (Continued) 10-119

1. Make sure two valves (1) are CLOSED. If valves are not closed, refer to TM 55-1520-240-T.


FORWARD
1
1
FORWARD
16982

2. Hold fitting (2) with wrench and disconnect hose (3). Plug hose. Use grounded container for spilled fluid. Clean up spilled fluid with cloths (E135).


2
3
20 X 26
D145-12116-SPA

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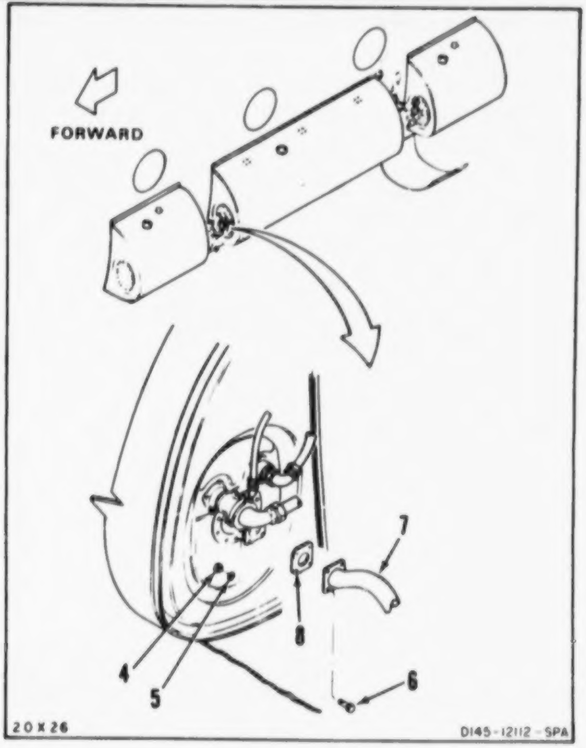
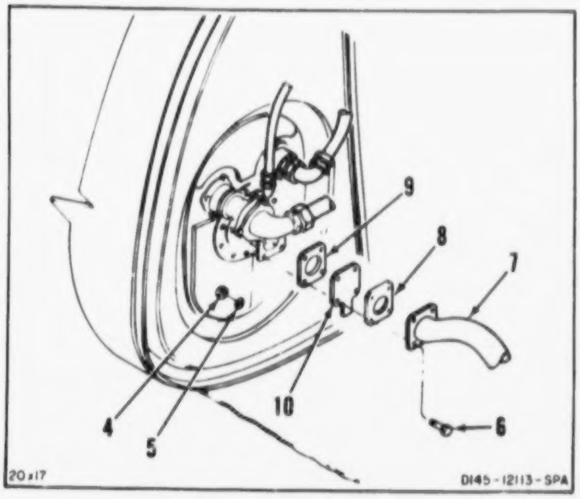
10-119 TEST PRESSURE REFUELING SYSTEM FOR LEAKS (Continued) 10-119

3. **Remove** four nuts (4), washers (5), and **bolts (6).**
4. Slide tube (7) and gasket (8) aft.


FORWARD
7
8
4
5
6
20 X 26
D145-12112-SPA

5. **Install gasket (9) and plate (10) (Appx E-17).**
6. **Slide tube (7)** and gasket (8) **forward and install four bolts (6),** nuts (4), and washers (5).
7. Repeat steps 2 thru 6 at No. 2 forward fuel tank.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20x17
D145-12113-SPA

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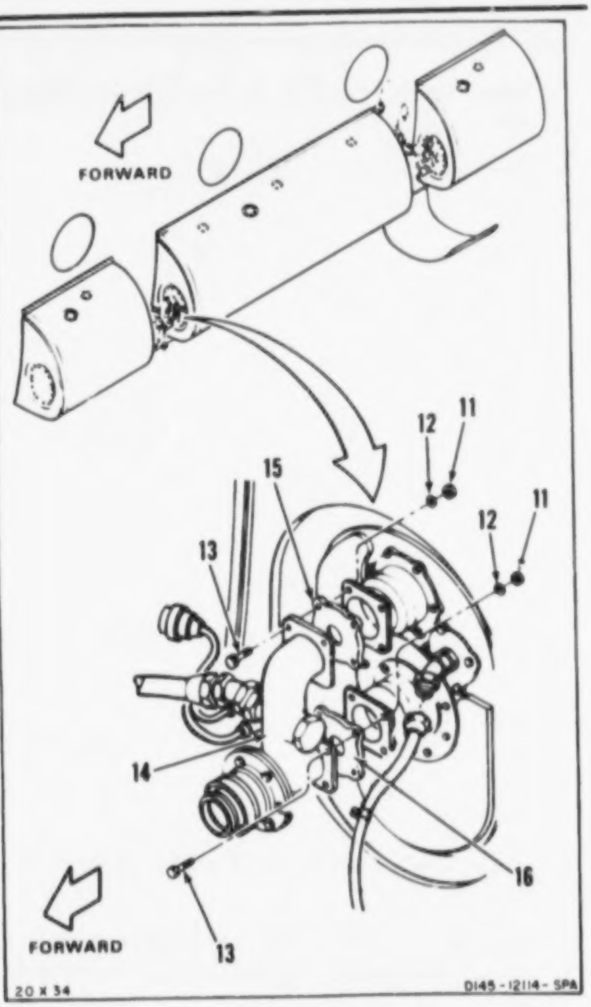
10-119 TEST PRESSURE REFUELING SYSTEM FOR LEAKS (Continued) 10-119

8. **Remove eight** nuts (11), washers (12), and **bolts (13).** Slide manifold (14) and gaskets (15 and 16) forward. Use container for spilled fluid. Clean up spilled fluid with cloths (E135).


FORWARD
12
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11
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14
16
FORWARD
13
20 X 34
D145-12114-SPA

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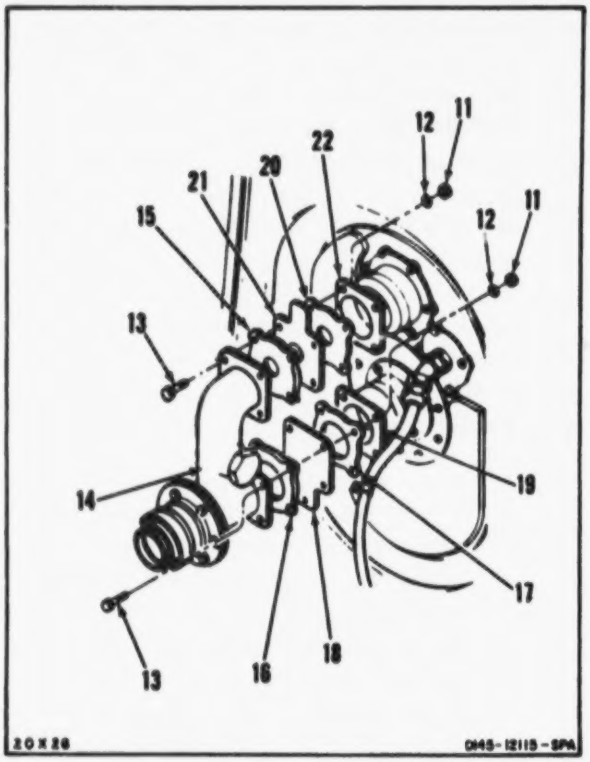
10-119 TEST PRESSURE REFUELING SYSTEM FOR LEAKS (Continued) 10-119

CAUTION

Gaskets and plates must be installed in correct order. Otherwise damage to fittings will result.

9. **Install gasket (17) and plate (E-17) (18)** on lower fitting (19).
10. **Install gasket (20) and plate (E-17) (21)** with hole on upper fitting (22).
11. Slide manifold (14) and gaskets (15 and 16) aft.
12. **Install eight bolts (13), nuts (11), and washers (12).**
13. Repeat steps 8 thru 12 at No. 2 main fuel tank.


12
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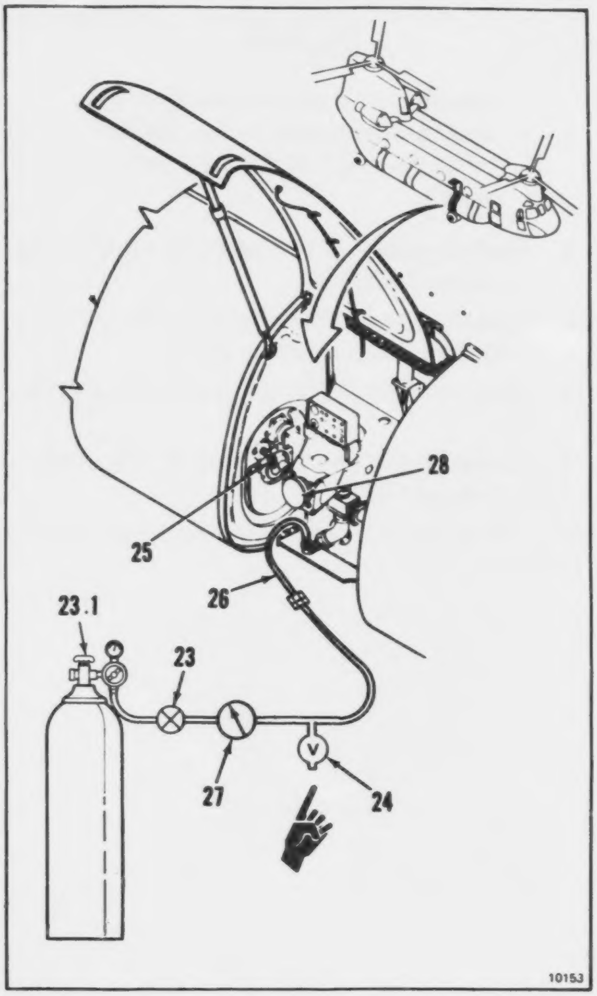
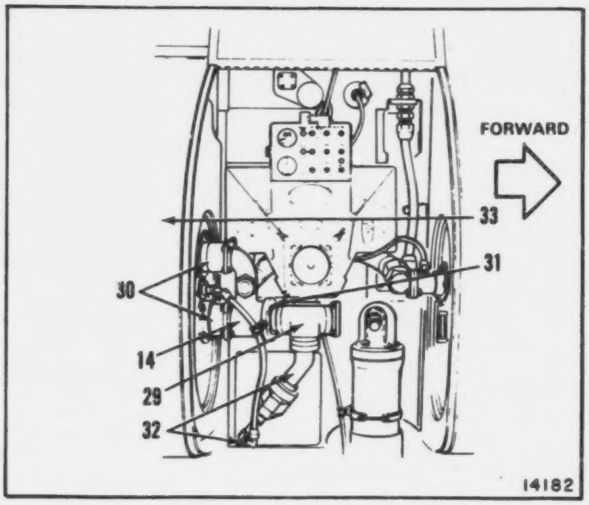
18
20X26
OH5-12115-SPA

10-119 TEST PRESSURE REFUELING SYSTEM FOR LEAKS (Continued) 10-119

14. Make sure shutoff valve (23) is closed and vent valve (24) is closed. Hold fitting (25) with wrench and **disconnect hose (26). Connect test setup** to hose.
15. Open supply valve (23.1) and **regulate pressure to 120 psi.** Open valve (23) and **allow pressure to stabilize at 120 psi** on gage (27). Close valve (23).
16. Wait 5 minutes. Check that gage (27) indicates 120 psi. If gage reads 120 psi, go to step 19. If gage reads less than 120 psi, go to step 17.
17. **Check for leaks** as follows:
    a. If any leak is found in steps 17b thru 17h, replace packings or parts and repeat steps 15 and 16.
    b. Check test setup connections upstream and downstream of valves (23 and 24), and gage (27). Use mixture of soap (E353) and water, and brush (E85). Allow system to remain under pressure for 15 minutes. If bubbles grow in size, connection is leaking. Tighten leaking connections or replace packings as needed. Also check all joints, seams, and cast components.
    c. Check at filler adapter (28). Use soap and water mixture as in step 17b.
    d. Check manifold (14), tee (29), two breakaway fittings (30), check valve (31), and two elbows (32) at forward end of main tank (33). Use soap and water mixture as in step 17b.





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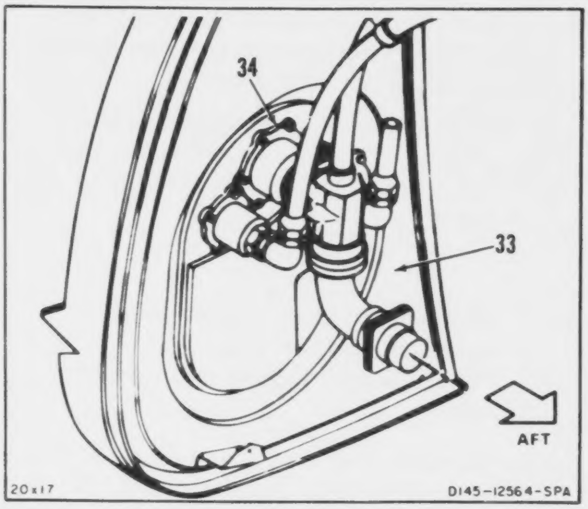
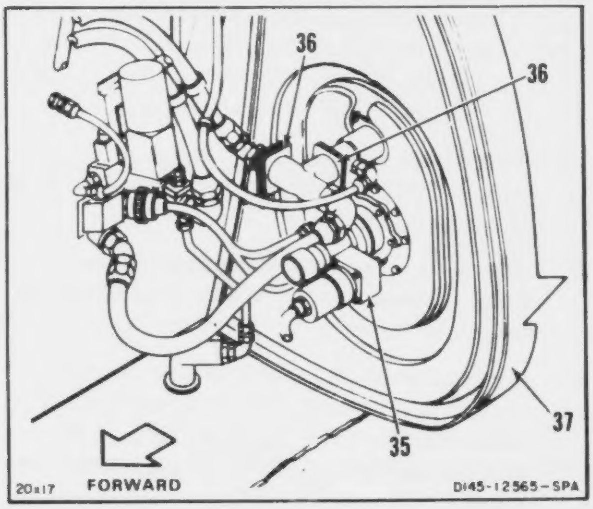
10-119 TEST PRESSURE REFUELING SYSTEM FOR LEAKS (Continued) 10-119

e. Check breakaway fitting (34) at aft end of main tank (33). Use soap and water mixture as in step 17a.

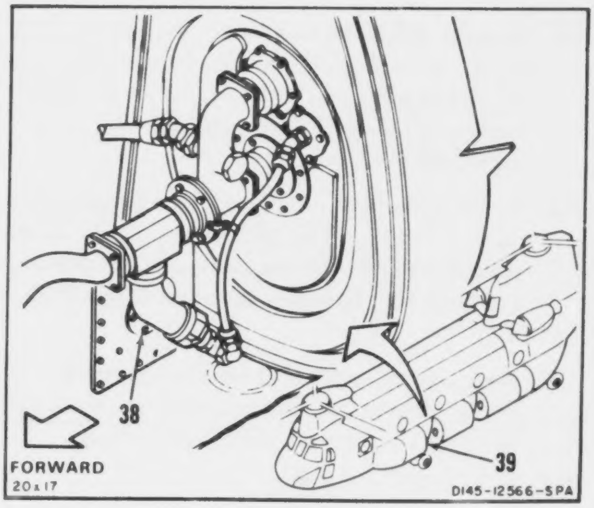

34
33
AFT
20x17
D145-12564-SPA

f. Check motorized valve (35) and two check valves (36) at forward end of aft tank (37). Use soap and water mixture as in step 17a.


36
36
37
35
FORWARD
20x17
D145-12565-SPA

g. Check pressure refueling cross-fuselage tube connection (38) at forward intertank pod area (39). Use soap and water mixture as in step 17a. If pressure continues to drop, go to step 18.

h. Repeat steps 17e thru 17g for tanks on opposite side of helicopter. If pressure does not drop, go to step 19. If pressure continues to drop, go to step 18.


38
39
FORWARD
20x17
D145-12566-SPA

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10-119 TEST PRESSURE REFUELING SYSTEM FOR LEAKS (Continued) 10-119

18. At upper end of manifold (14) on both main tanks (33) **remove plates (21) and install blanking plates (18)** as follows:
    a. Remove eight nuts (11), bolts (13), and washers (12). Slide manifold (14), plates (18 and 21), and gaskets (15 and 16) forward.

    CAUTION

    Gaskets and plates must be installed in correct order. Otherwise damage to fittings will result.

    b. Remove plate (21). Install gasket (17) and plate (18) (E21), on lower fitting (19). **Install gasket (20) and plate (18)** on upper fitting (22). Slide manifold (14), and gaskets (15 and 16) aft. Install eight bolts (13), nuts (11), and washers (12).

19. **Repeat steps 15 and 16.** If gage reads 120 psi, go to step 21. If gage reads less than 120 psi, go to step 20.

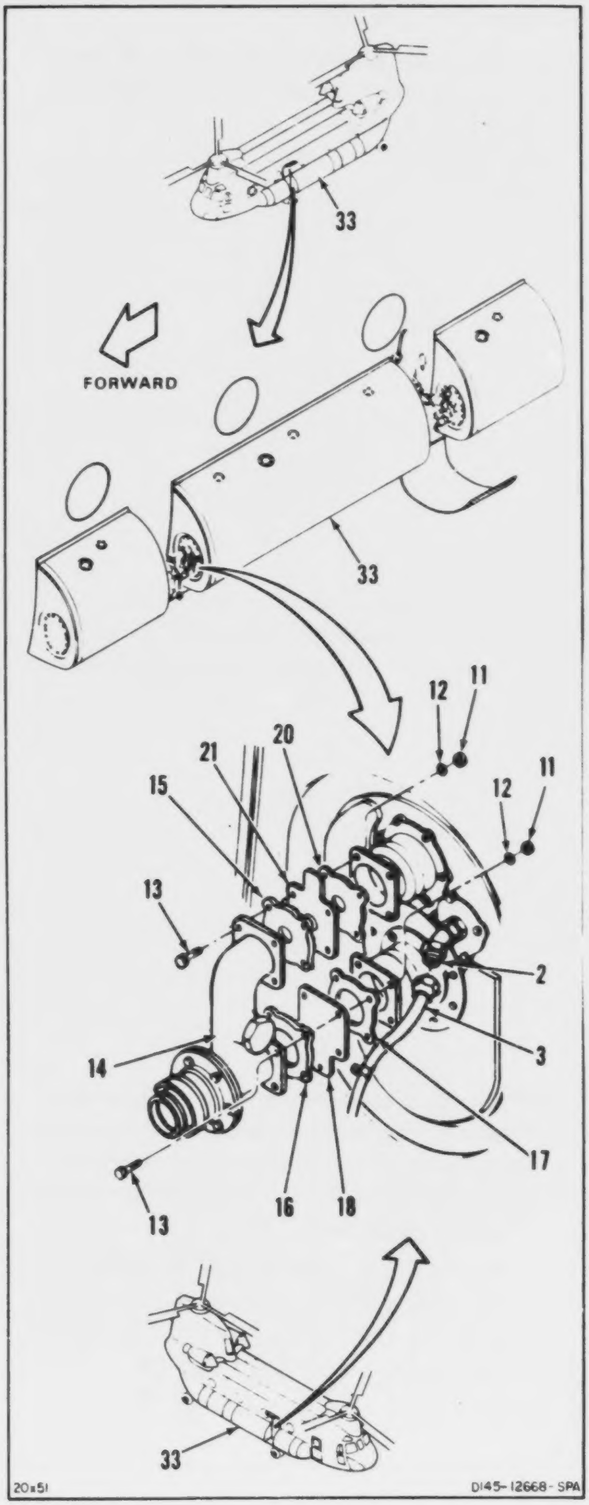
20. **Check pressure refueling tubing and fittings connecting intertank areas through fuselage.** Refer to TM 55-1500-204-25/1.

21. At right main tanks manifold (14), remove eight nuts (11), bolts (13), and washers (12). **Slide manifold (14), plates (18 and 20), and gaskets (15 and 16) forward. Repeat steps 9 thru 12.**

22. **Repeat steps 15 and 16.** If gage reads 120 psi, go to step 24. If gage reads less than 120 psi, check left main tank (33) for leak. **Install blanking plates (18) on right main tank manifold (14),** as in step 18.

23. At left main tank manifold (14), remove eight nuts (11), bolts (13), and washers (12). **Slide manifold (14), plates (18), and gaskets (15 and 16) forward. Repeat steps 9 thru 12.**

24. **Repeat steps 15 and 16.** If gage reads 120 psi, go to step 25. If gage reads less than 120 psi, check right main tank (33) for leaks.



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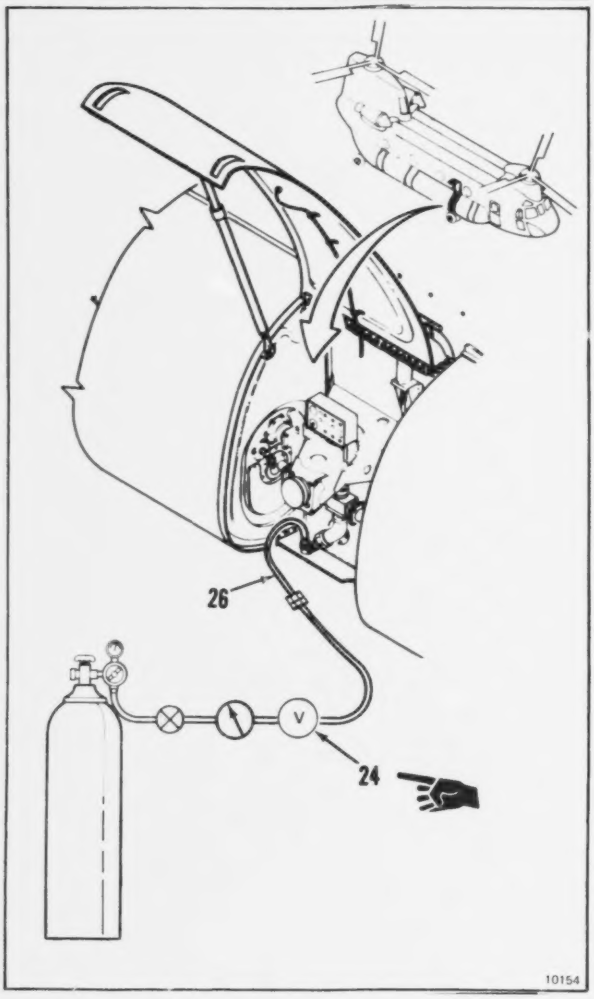
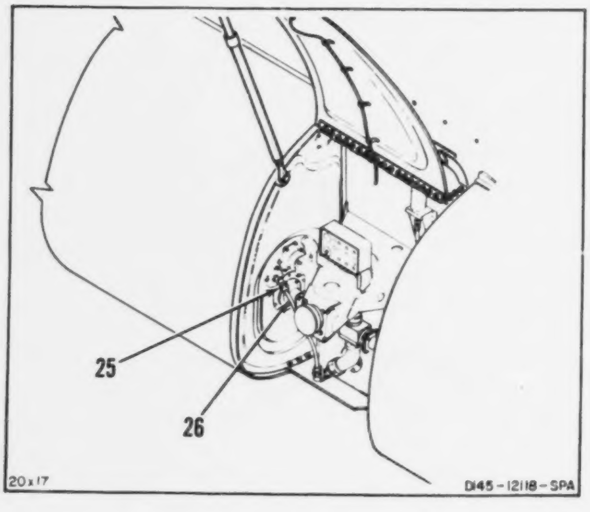
10-119 TEST PRESSURE REFUELING SYSTEM FOR LEAKS (Continued) 10-119

25. Open vent valve (24) to **reduce pressure to 0 psi.**
26. **Disconnect test setup** from hose (26).


26
V
24
10154

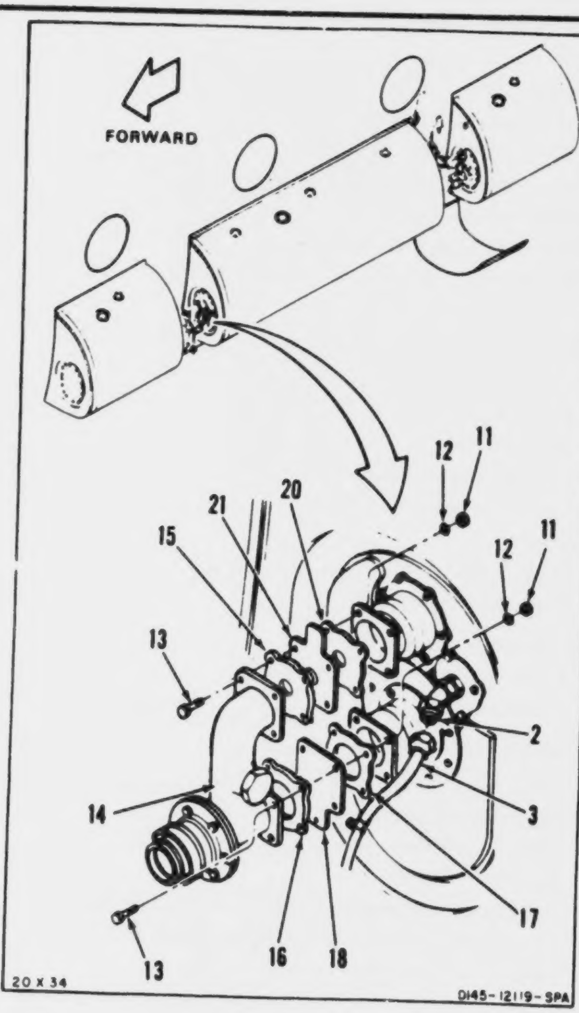
27. Hold fitting (25) with wrench. **Connect hose (26).**


25
26
20x17
D145-12118-SPA

GO TO NEXT PAGE

10-119 TEST PRESSURE REFUELING SYSTEM FOR LEAKS (Continued) 10-119

28. Remove plug from hose (3). Hold fitting (2) with wrench and **connect hose.**
29. **Remove eight** nuts (11), **bolts (13)** and washers (12). Slide manifold (14) and gaskets (15 and 16) forward.
30. **Remove two plates (18 and 21) and two gaskets (17 and 20).**
31. Slide manifold (14) and gaskets (15 and 16) aft and **install eight bolts (13),** nuts (11), and washers (12).
32. Repeat steps 20 thru 22 on No. 2 main fuel tank.


FORWARD
12
11
21
20
15
12
11
13
2
14
3
17
13
16
18
20 X 34
D145-12119-SPA

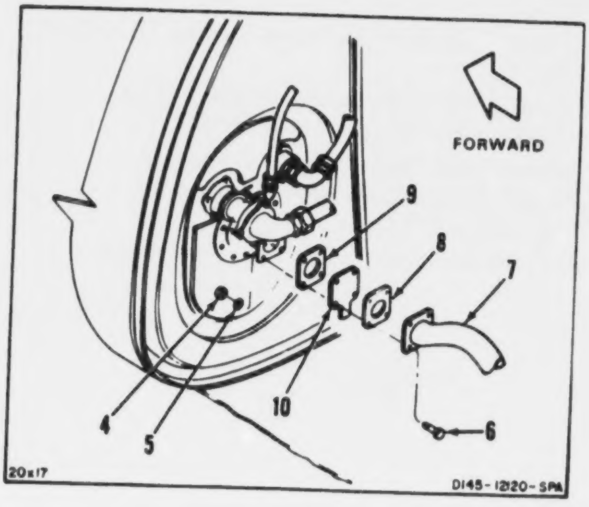
33. **Remove four bolts (6),** nuts (4), and washers (4). Slide tube (7) and gasket (8) aft and **remove gasket (9) and plate (10).**
34. Slide tube (7) and gasket (8) forward. **Install four bolts (6),** nuts (4), and washers (5).
35. Repeat steps 24 and 25 on No. 2 forward fuel tank.

FOLLOW-ON MAINTENANCE:

Refuel helicopter (Task 1-51).
Bleed fuel system (Task 10-121).
Perform operation check of fuel system (TM 55-1520-240-T).

Install aft intertank pod panel (Task 2-188).

Close forward landing gear access panel (Task 2-2).


FORWARD
9
8
7
10
4
5
6
20x17
D145-12120-SPA

END OF TASK

10-120 TEST FUEL FEED SYSTEM

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic Tool Kit, NSN 5180-00-323-4692
Nitrogen Supply with Regulator
Shutoff Valve
Pressure Gage, 0-100 Psi
Stopwatch NSN 6645-00-250-4680
Vent Valve

Materials:

Cloths (E135)
Soap (E353)
Brush (E85)
Lockwire (E229)
Lockwire (E231)

Parts:

Plug, AN806-16D (2)
Plug, AN806-6D (2)

Personnel Required:

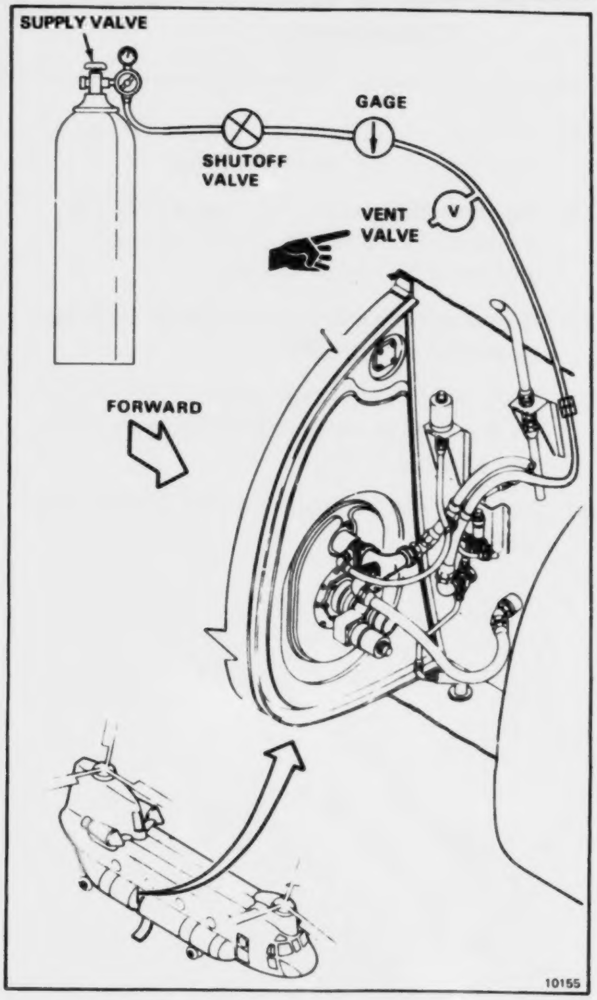
Medium Helicopter Repairer
Inspector

References:

TM 55-1500-204-25/1

Equipment Condition:

Electrical Power On
Hydraulic Power Off
Helicopter Defueled (Task 10-34 or 10-35)
Aft Intertank Pod Panels Open (Task 2-185)
Helicopter Grounded (Task 1-29)
Heater Compartment Acoustic Blanket Removed (Task 2-107)
Cargo Ramp Open and Level (TM 55-1520-240-T)
Ramp Work Platform Open (Task 2-238)
Apu Drip Pan Removed (Task 2-3)
Engine Work Platform Open (Task 2-2)
Engine Access Cover Open (Task 4-49)
Test Setup
2 Quart Container, Grounded to Helicopter



General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

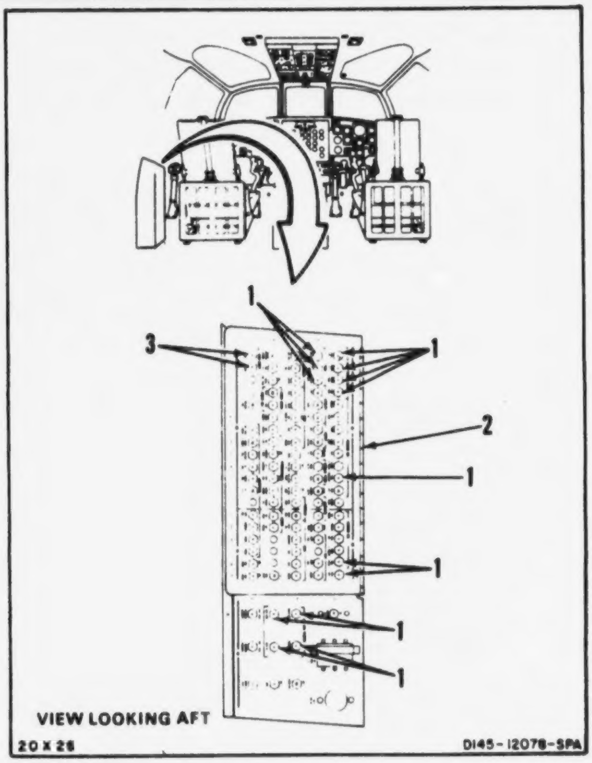
CAUTION

Do not allow nipple or fittings to turn when disconnecting fuel lines from aft access panel of tank. Otherwise, access door fittings can fail and cause blockage.

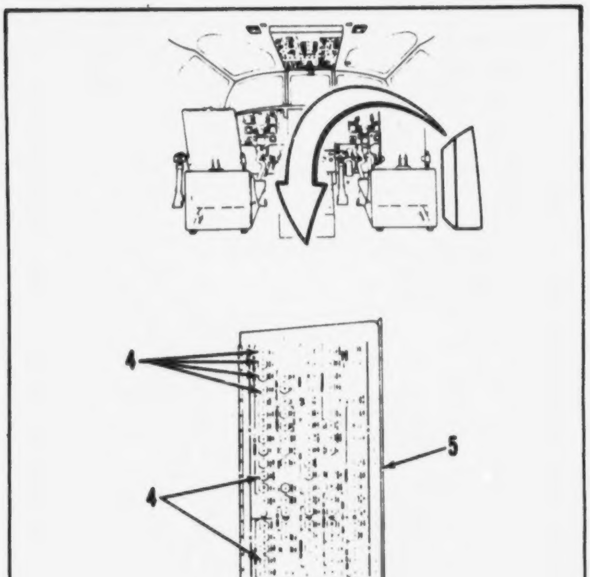
GO TO NEXT PAGE

TEST NO. 2 ENGINE AND HEATER FUEL FEED LINES

1. **Close 14 fuel circuit breakers (1)** and APU NORM and EMERG **circuit breakers (3)** on No. 1 power distribution panel (2).


1
3
1
2
1
1
1
1
VIEW LOOKING AFT
20 X 26
D145-12078-SPA

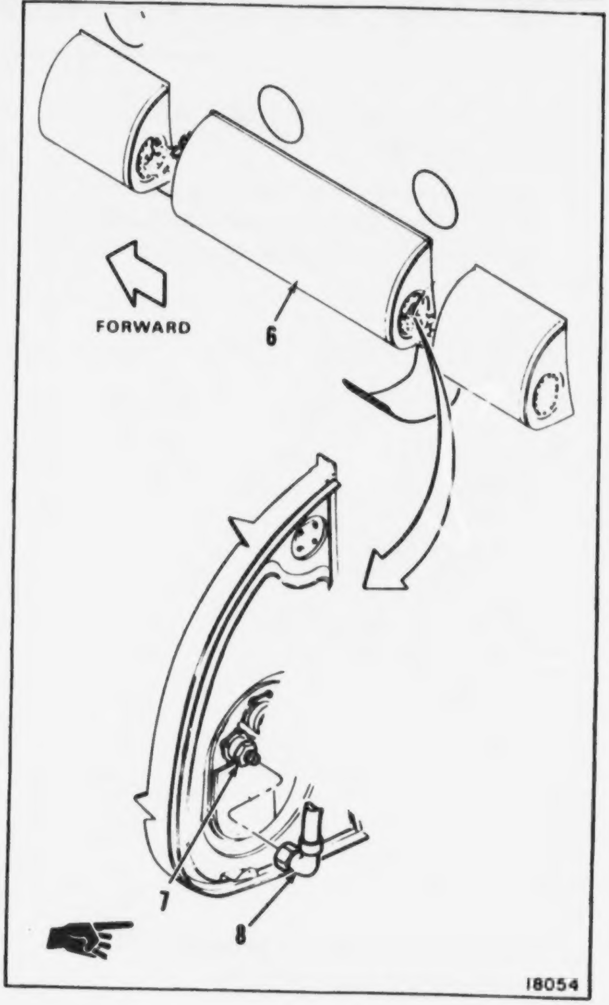
2. **Close 10 fuel circuit breakers (4)** on No. 2 power distribution panel (5).


4
5
4
4
VIEW LOOKING AFT
20 X 26
D145-12079-SPA

GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued)

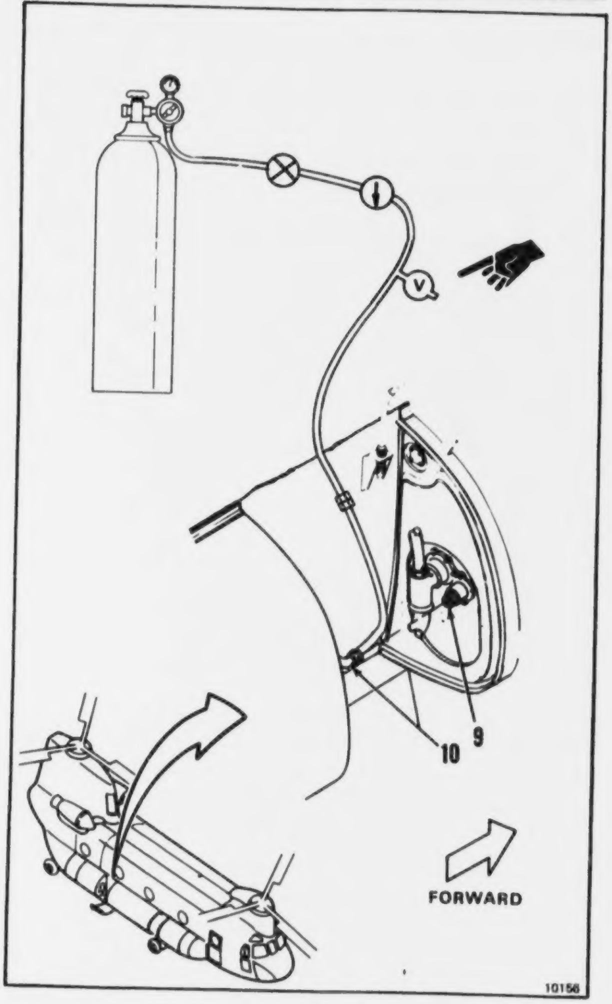
3. At aft end of left main tank (6), hold breakaway fitting (7) with wrench and **disconnect hose (8).** Catch spilled fuel. Use grounded container. Plug hose. Clean up spilled fuel with cloths (E135).



GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued)

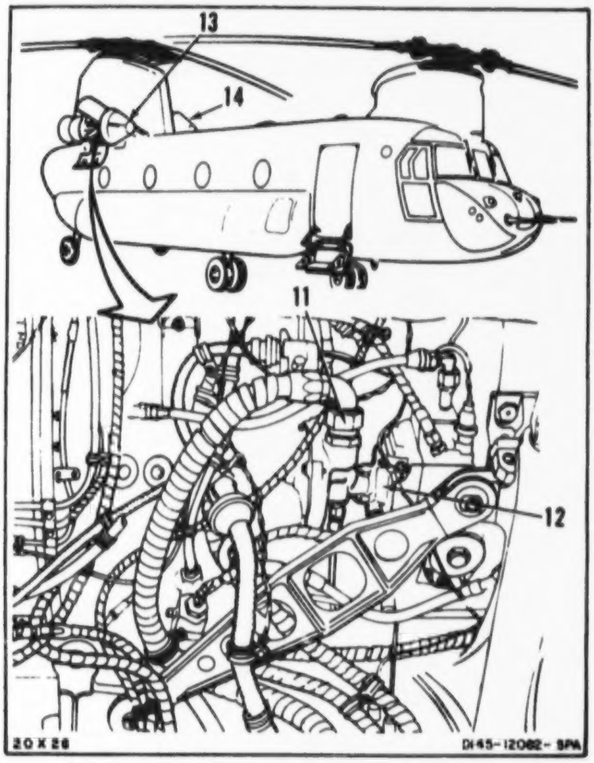
4. Hold fitting (9) with wrench and **disconnect hose (10).** Catch spilled fuel. Use grounded container. Connect test setup to hose. Clean up spilled fuel with cloths (E135).



GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

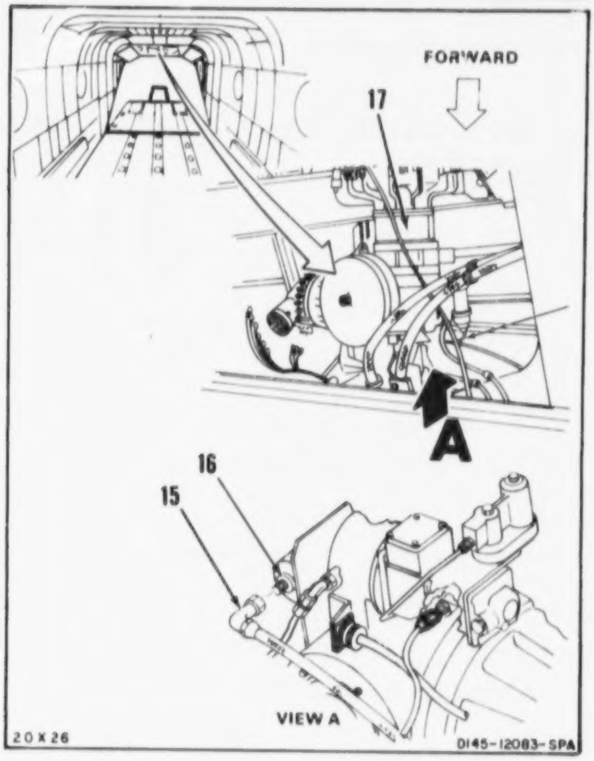
5. **Disconnect fuel hose (11)** from fuel boost pump (12) on No. 2 engine (13). Catch spilled fuel. Use grounded container. Clean up spilled fuel with cloths (E135).
6. Repeat step 5 on No. 1 engine (14).


13
14
11
12
20 X 26
DI45-12082-SPA

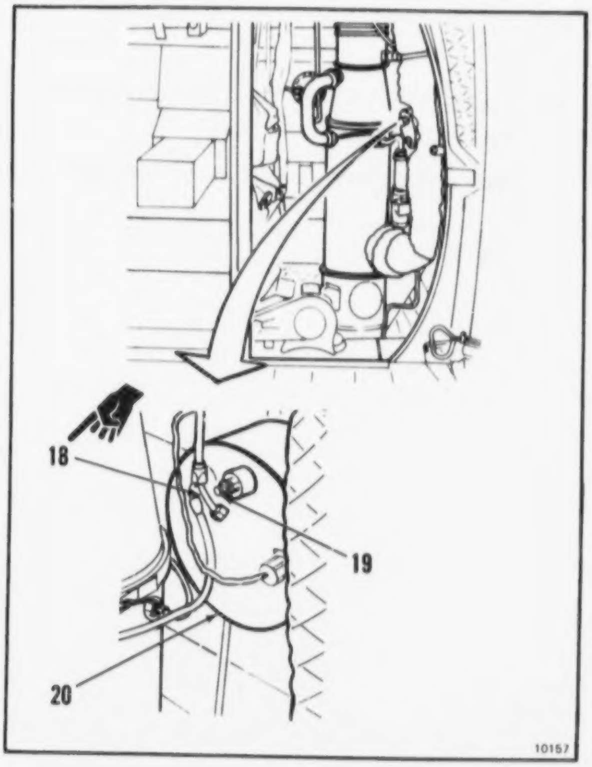
GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued)

7. **Disconnect fuel hose (15)** from port (16) on apu (17). Catch spilled fuel in grounded container. Clean up spilled fuel with cloths (E135).


FORWARD
17
A
16
15
VIEW A
20 X 26
DI45-12083-SPA

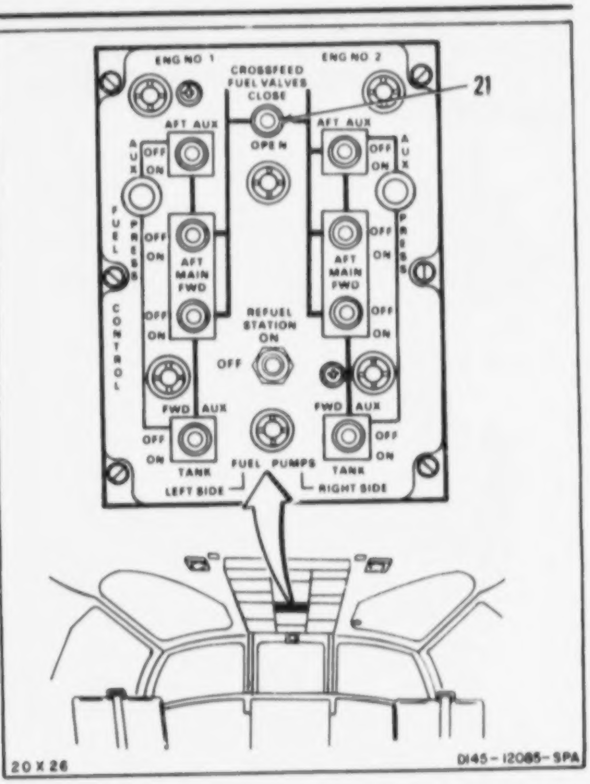
8. **Disconnect fuel hose (18)** from port (19) on heater fuel control (20). Catch spilled fuel in grounded container. Clean up spilled fuel with cloths (E135).


18
19
20
10157

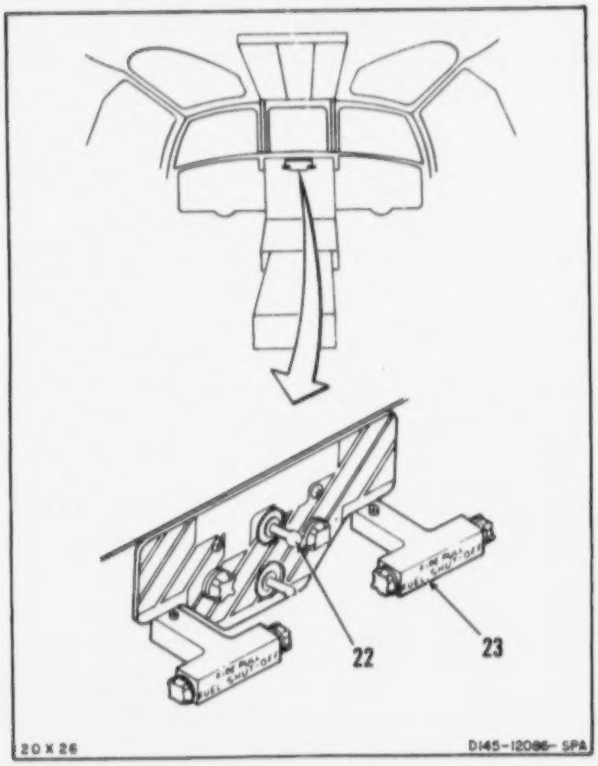
GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

9. **Set** CROSSFEED FUEL VALVE **switch (21) to CLOSE.**


ENG NO 1
ENG NO 2
CROSSFEED FUEL VALVES CLOSE
OPEN
21
AFT AUX
AUX
OFF
ON
FUEL PRESS
AFT MAIN FWD
FUEL CONTROL
REFUEL STATION ON
OFF
FWD AUX
TANK
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
20 X 26
D145-12085-SPA

10. **Make sure** FIRE EXTINGUISHER AGENT **switch (22) is** set to **OFF.**
11. **Pull out right** side FIRE PULL **handle (23).**


FIRE PULL FUEL SHUT OFF
22
23
20 X 26
D145-12086-SPA

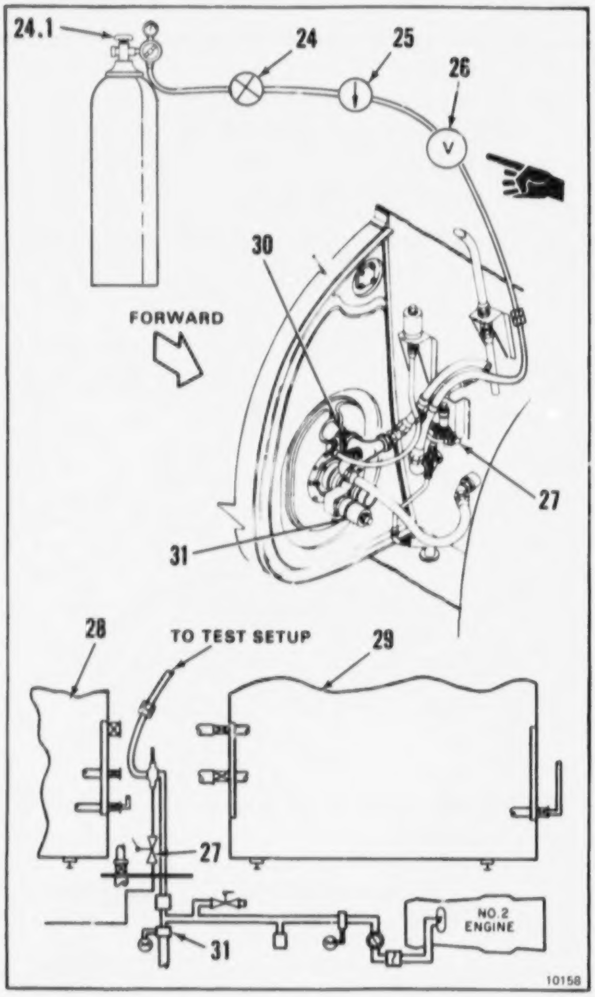
GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

12. **Close valves (24 and 26).** Open valve (24.1) and **regulate pressure to 30 psi** . Open valve (24) and **stabilize pressure to 30 psi on gage (25)**. Close valve (24).
13. **Wait 5 minutes** and check gage (25). If gage indicates 30 psi , go to step 15. If gage does not indicate 30 psi , go to step 14.

CHECK NO. 2 ENGINE AND HEATER LINES FOR LEAKS

14. **Check for leaks** as follows:
    a. Check test connections upstream and downstream of valves (24 and 26) and gage (25). Use mixture of soap (E353) and water, and brush (E85).
    b. Check connections at heater fuel solenoid valve (27) between right main (28) and right aft (29) tanks. Use soap and water solution as in step 14a.
    c. Check No. 2 engine fuel feed connection at check valve (30) and crossfeed motorized shutoff valve (31). Use soap and water mixture as in step 14a.

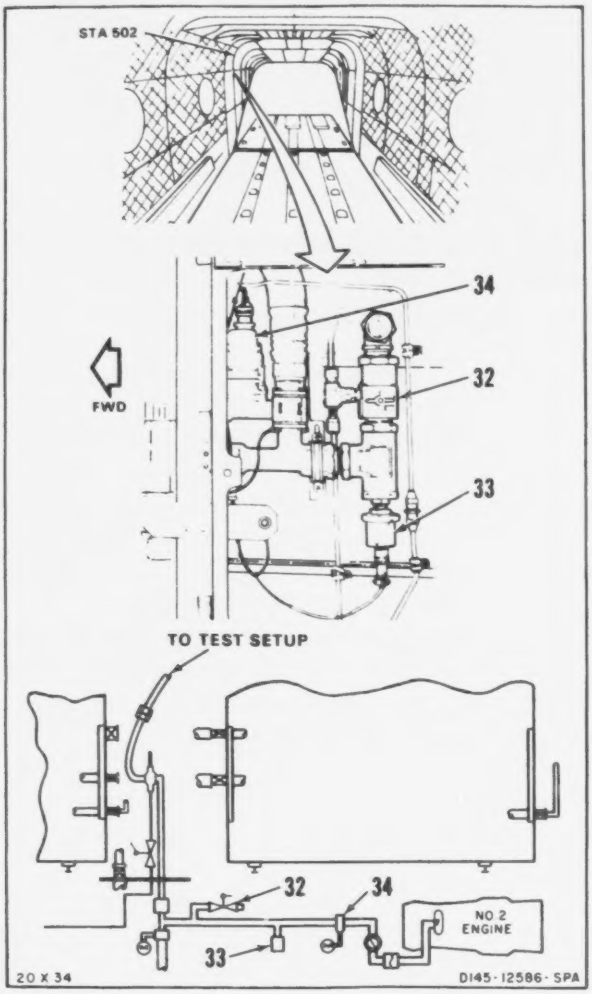


GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

d. Check connections at manual drain valve (32), pressure switch (33), and engine motorized shutoff valve (34). Use soap and water mixture as in step 14a.

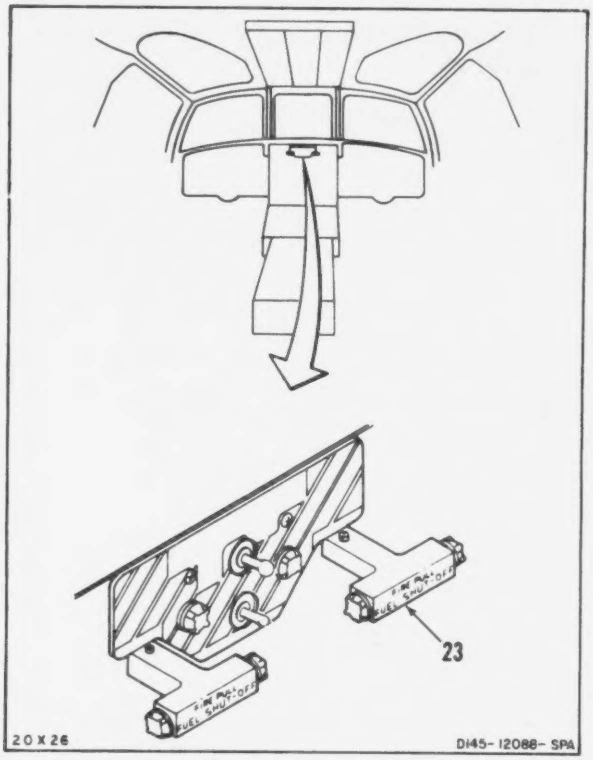
e. Check tubing, hoses, and fittings. Refer to TM 55-1500-204-25/1.


STA 502
34
32
FWD
33
TO TEST SETUP
32
34
NO 2 ENGINE
33
20 X 34
D145-12586-SPA

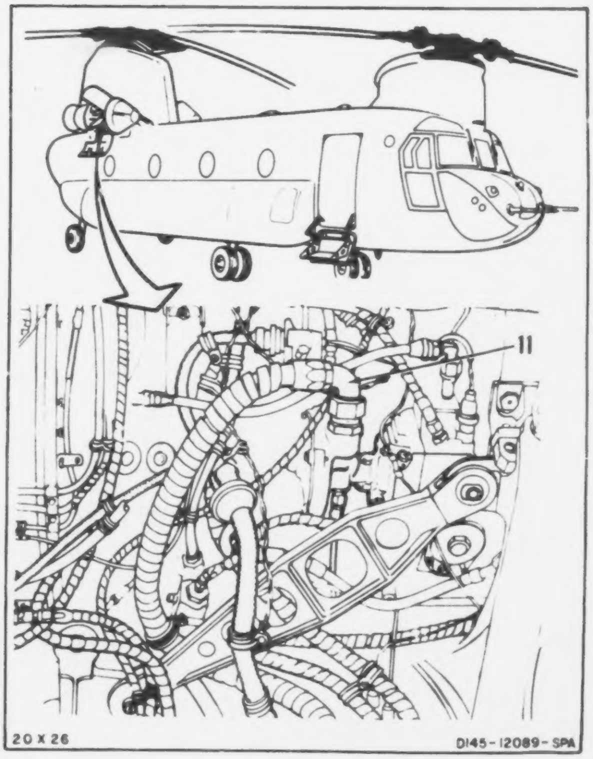
GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

15. **Push in** right side FIRE PULL **handle (23).**


FIRE PULL
FUEL SHUT-OFF
FIRE PULL
FUEL SHUT-OFF
23
20 X 26
DI45-12088-SPA

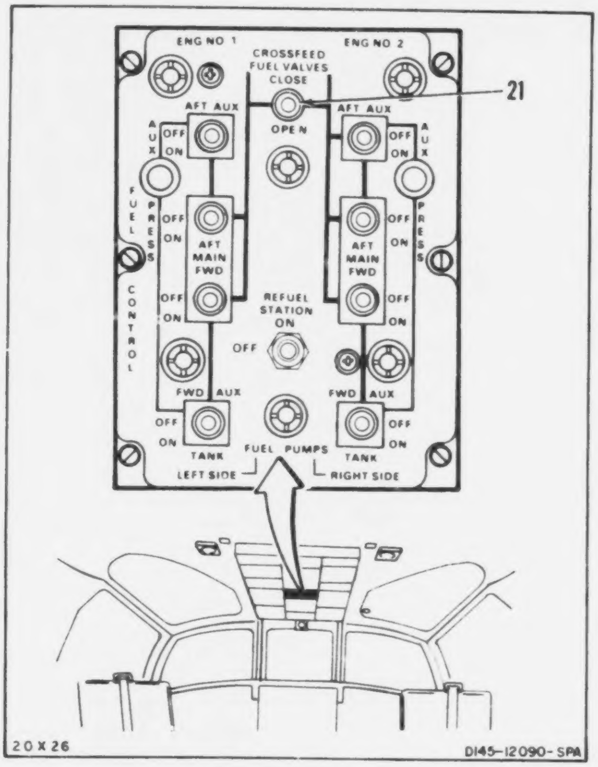
16. **Plug** No. 2 engine fuel **hose (11).**


11
20 X 26
DI45-12089-SPA

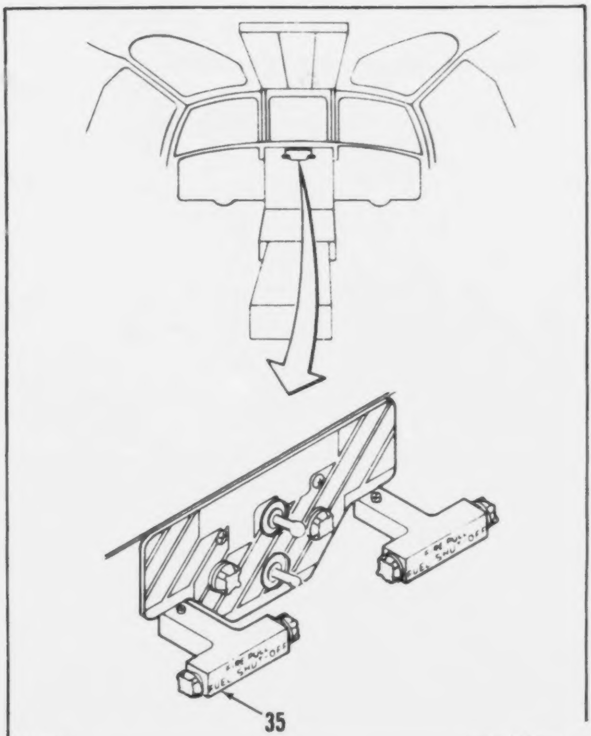
GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

17. **Set** CROSSFEED FUEL VALVE **switch (21) to OPEN.**


ENG NO 1
ENG NO 2
CROSSFEED
FUEL VALVES
CLOSE
OPEN
21
AFT AUX
AUX
OFF
ON
FUEL
PRESS
CONTROL
AFT
MAIN
FWD
REFUEL
STATION
ON
OFF
FWD
AUX
TANK
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
20 X 26
D145-12090-SPA

18. **Pull out left** side FIRE PULL **handle (35).**

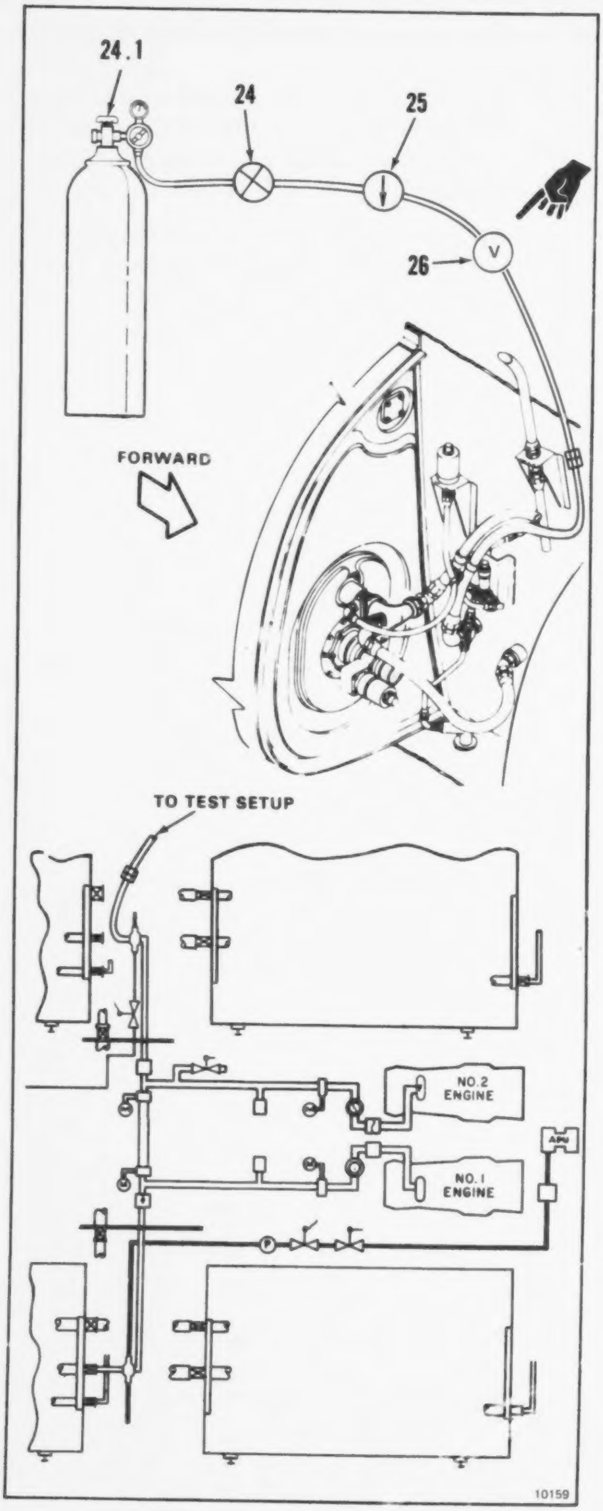

FIRE PULL
FUEL SHUT OFF
35
20 X 26
D145-12091-

GO TO NEXT PAGE

19. **Close valves (24 and 26).** Open valve (24.1) and **regulate pressure to 30 psi** . Open valve (24) and **stabilize pressure to 30 psi on gage (25)**. Close valve (24).
20. **Wait 5 minutes** and check gage (25). If gage indicates 30 psi , go to step 22. If gage does not indicate 30 psi , go to step 21.

CHECK NO. 1 ENGINE AND ENGINE CROSSFEED LINES FOR LEAKS

21. **Check for leaks** as follows:
    a. Check that plug installed in step 16 is secure. Use soap and water mixture as in step 14a.

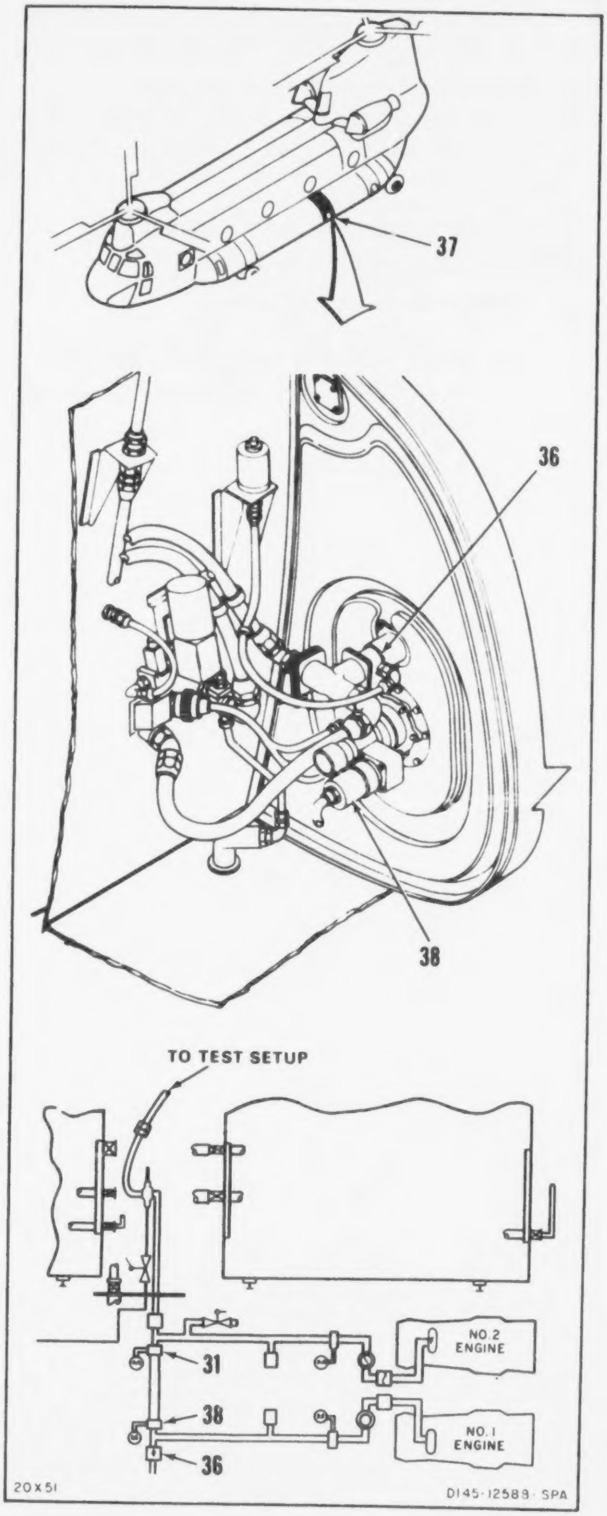

24.1
24
25
26
V
FORWARD
TO TEST SETUP
NO.2 ENGINE
NO.1 ENGINE
APU
10159

GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

b. Check No. 1 engine fuel feed connections at check valve (36) in left aft intertank area (37). Use soap and water mixture as in step 14a.

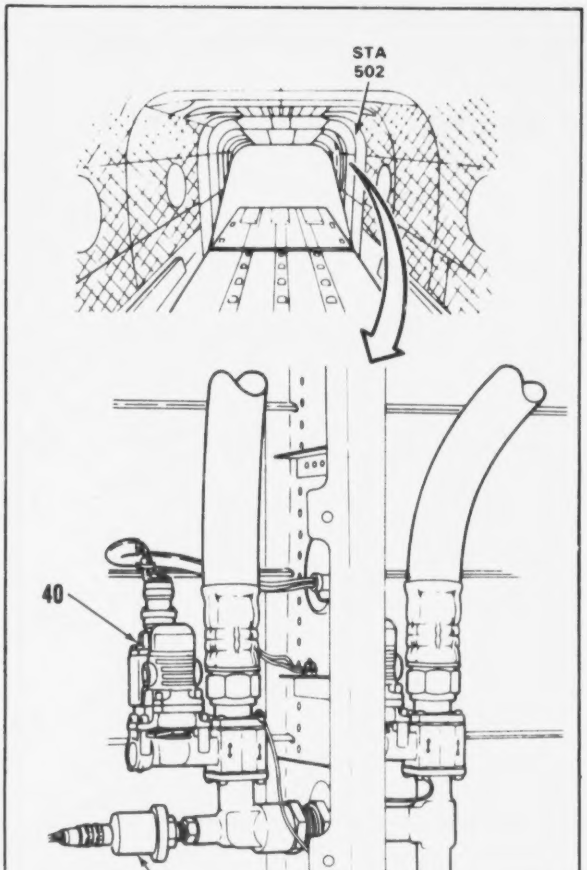
c. Check crossfeed fuel connections at motorized shutoff valve (38). Use soap and water mixture as in step 14a.


37
36
38
TO TEST SETUP
NO. 2 ENGINE
31
38
NO. 1 ENGINE
36
20X51
D145-12588-SPA

GO TO NEXT PAGE

d. Check connections at pressure switch (39) and engine motorized shutoff valve (40). Use soap and water mixture as in step 14a.

e. Check tubing, hoses, and fittings. Refer to TM 55-1500-204-25/1.

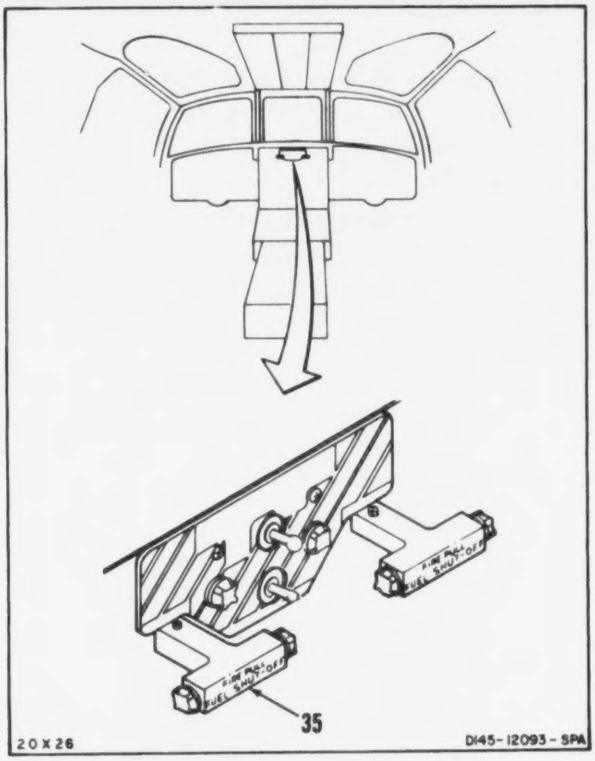

STA
502
40
39
FORWARD
TO TEST SETUP
NO 2 ENGINE
40
39
NO 1 ENGINE
20X51
D145-12589-SPA

GO TO NEXT PAGE

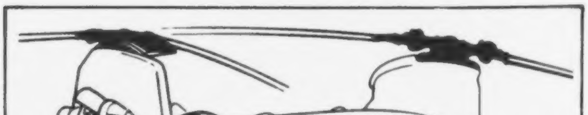
10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

TEST NO. 1 ENGINE FUEL FEED LINE BETWEEN SHUTOFF VALVE AND ENGINE

22. **Push left** side FIRE PULL **handle (35).**


FIRE PULL
FUEL SHUT-OFF
FIRE PULL
FUEL SHUT-OFF
35
20X26
D145-12093-SPA

23. **Plug** No. 1 engine fuel **hose (41).**


41
20X26
D145-12094-SPA

GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

24. **Close valves (24 and 26).** Open valve (24.1) and **regulate pressure to 30 psi**. Open valve (24) and **stabilize pressure to 30 psi on gage (25)**. Close valve (24).

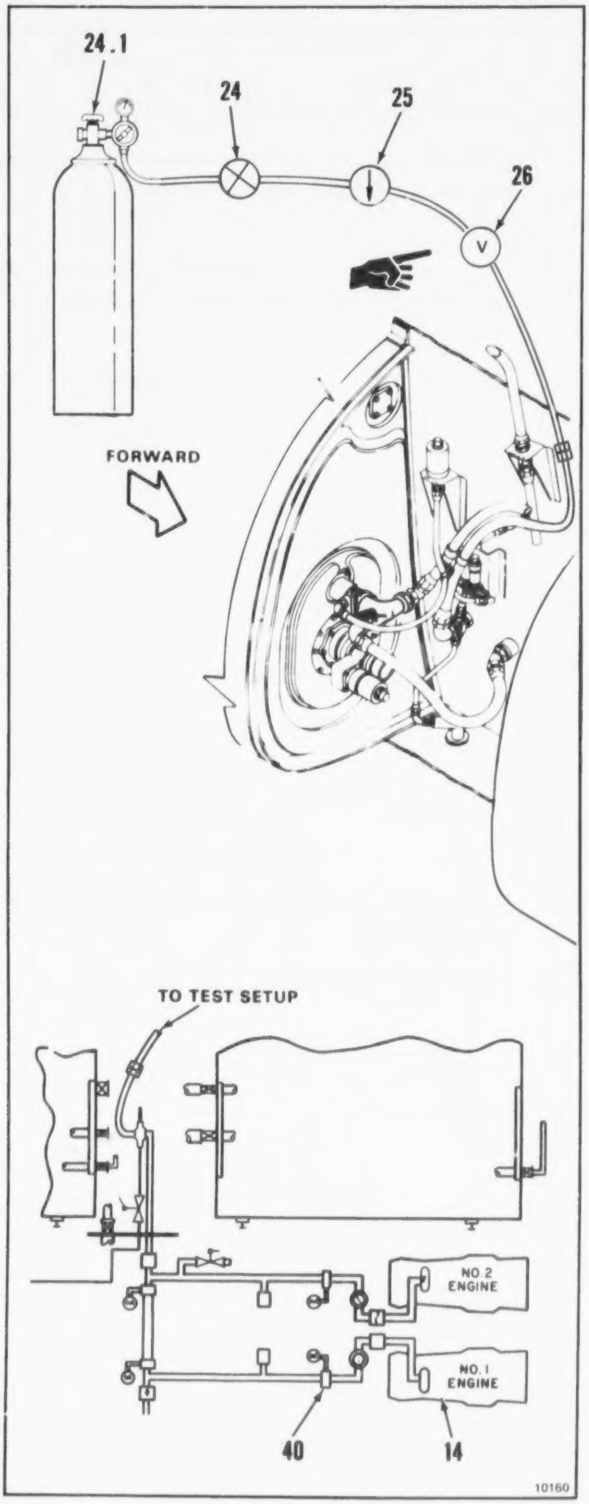
25. **Wait 5 minutes** and check gage (25). If gage indicates 60 psi, go to step 27. If gage does not indicate 60 psi, go to step 26.

CHECK FOR LEAKS BETWEEN SHUTOFF VALVE AND NO. 1 ENGINE

26. **Check for leaks** as follows:

    a. Check connectors between shutoff valve (40) and No. 1 engine (14). Use soap and water mixture as in step 14a.

    b. Check tubing, hoses, and fittings between shutoff valve (40) and No. 1 engine (14). Refer to TM 55-1500-204-25/1.

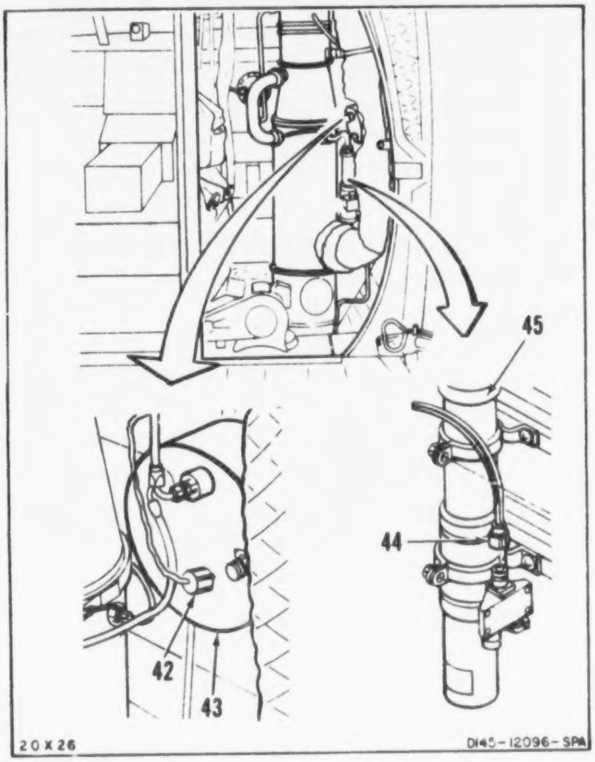


GO TO NEXT PAGE

TEST FUEL FEED LINE BETWEEN SHUTOFF VALVE AND HEATER

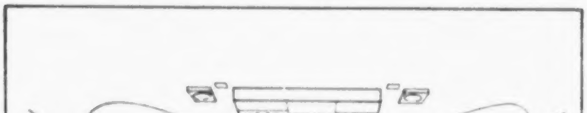
27. Remove lockwire and **disconnect electrical connector (42)** from heater fuel control (43).

28. Remove lockwire and **disconnect electrical connector (44)** from heater ignition unit (45).


45
44
42
43
20 X 26
DI45-12096-SPA

29. **Set switch (46)** on HEATING panel (47) **to HEATER ON.**

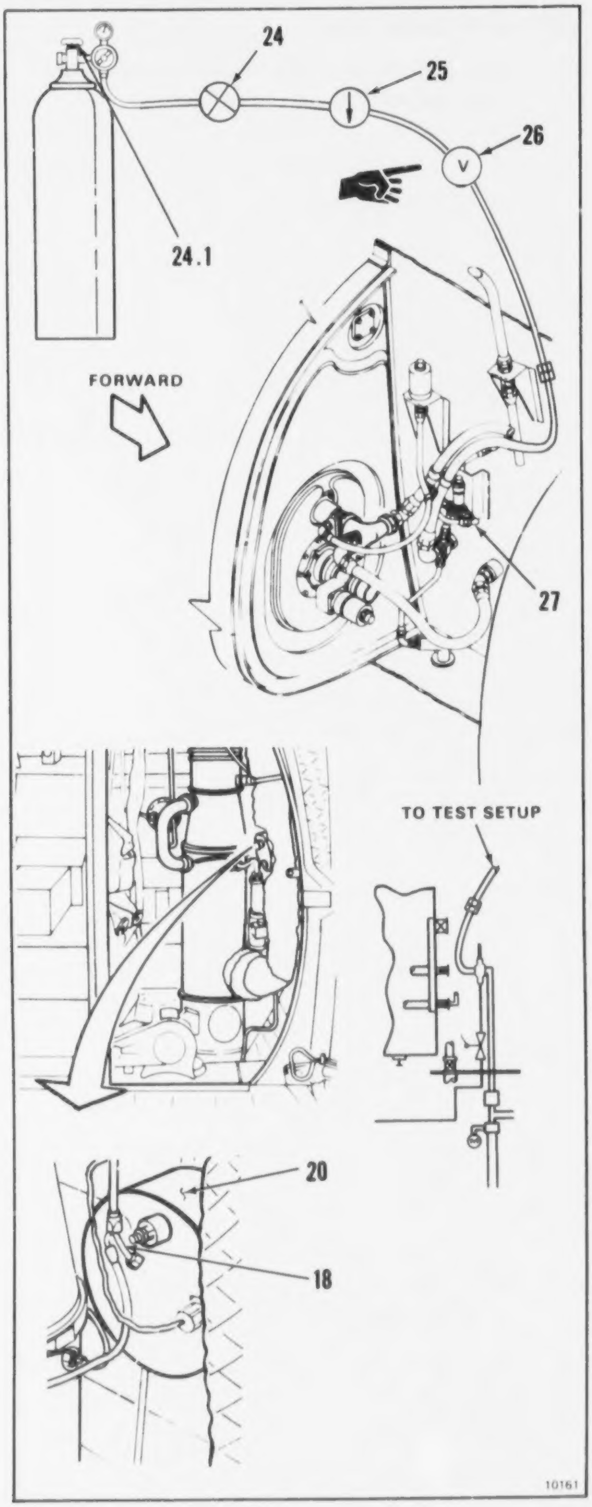
30. **Push HEATER START switch (48).**


46
TROOP WARN.
VENT BLOWER ONLY
OFF
HEATER ON
HEATER START
WINDSHIELD WIPERS
PARK
OFF
SLOW
MED
FAST
CABIN TEMP SELECTOR
COLDER
WARMER
HEATING
47
48
20 X 26
DI45-12097-SPA

GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

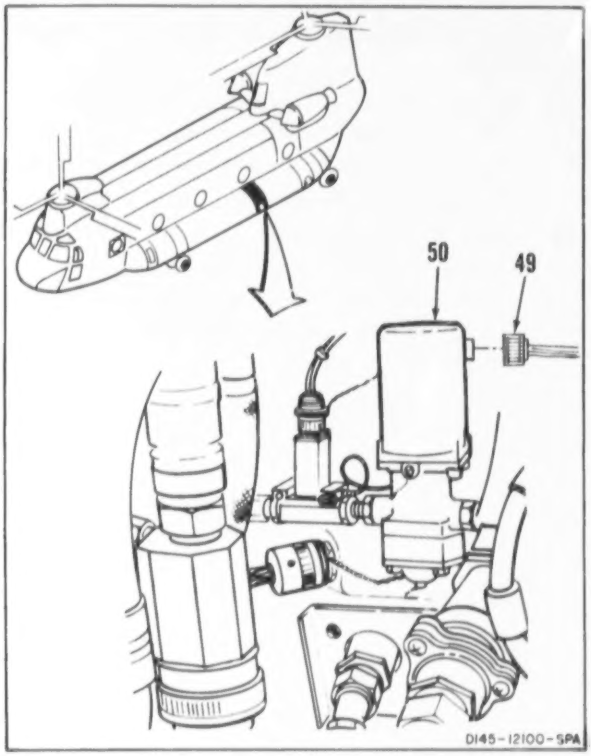
31. **Plug fuel hose (18)** at heater fuel control (20).
32. **Close valves (24 and 26).** Open valve (24.1) and **regulate pressure to 30 psi** . Open valve (24) and **stabilize pressure to 30 psi on gage (25)**. Close valve (24).
33. **Wait 5 minutes** and check gage (25). If gage indicates 60 psi , go to step 35. If gage does not indicate 60 psi , go to step 34. Check for leaks between shutoff valve and heater.
34. Check tubes, hoses, and fittings between heater fuel solenoid valve (27) and heater (20).



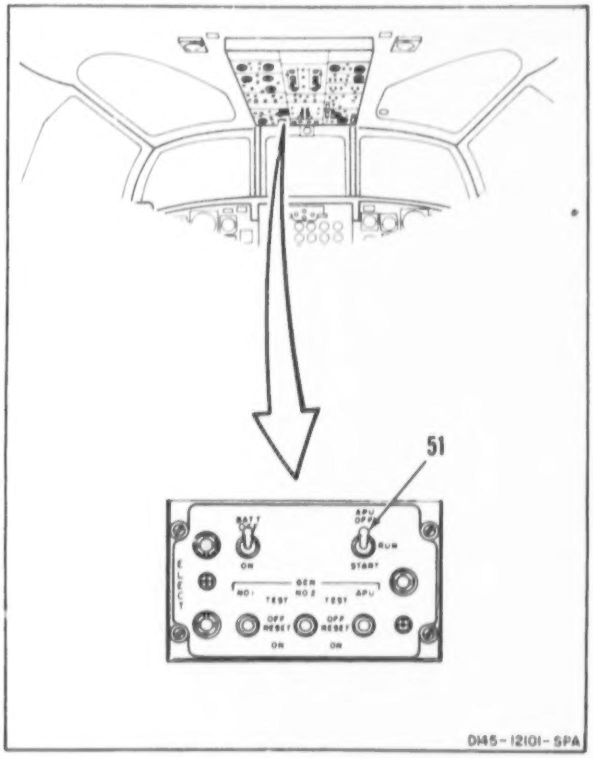
GO TO NEXT PAGE

TEST APU FUEL LINE

35. **Disconnect electrical connector (40)** from apu fuel boost pump (50).

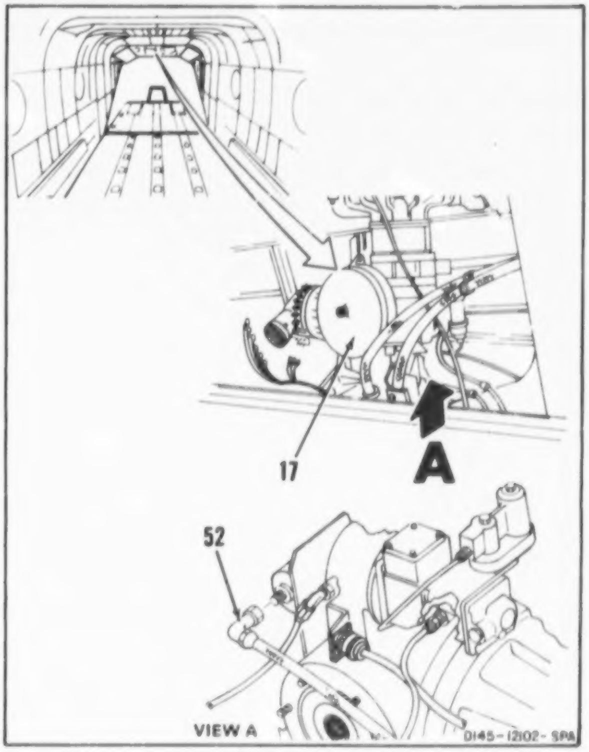

50
49
D145-12100-SPA

36. **Set** apu **switch (51) to RUN.**

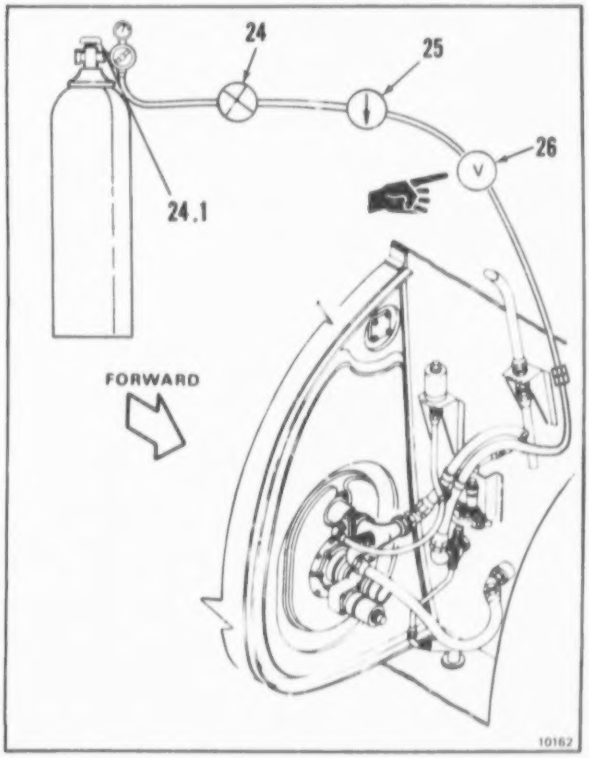

51
BATT
OFF
ON
APU
OFF
RUN
START
ELECT
GEN
NO 1
NO 2
APU
TEST
TEST
OFF
RESET
OFF
RESET
ON
ON
D145-12101-SPA

GO TO NEXT PAGE

37. **Plug fuel hose (52)** at apu (17).


17
A
52
VIEW A
D145-12102-SPA

38. **Close valves (24 and 26).** Open valve (24.1) and **regulate pressure to 60 psi** . Open valve (24) and **stabilize pressure to 60 psi on gage**. Close valve (24).
39. Wait 5 minutes and check gage (25). If gage indicates 60 psi , go to step 41. If gage does not indicate 60 psi , go to step 40.

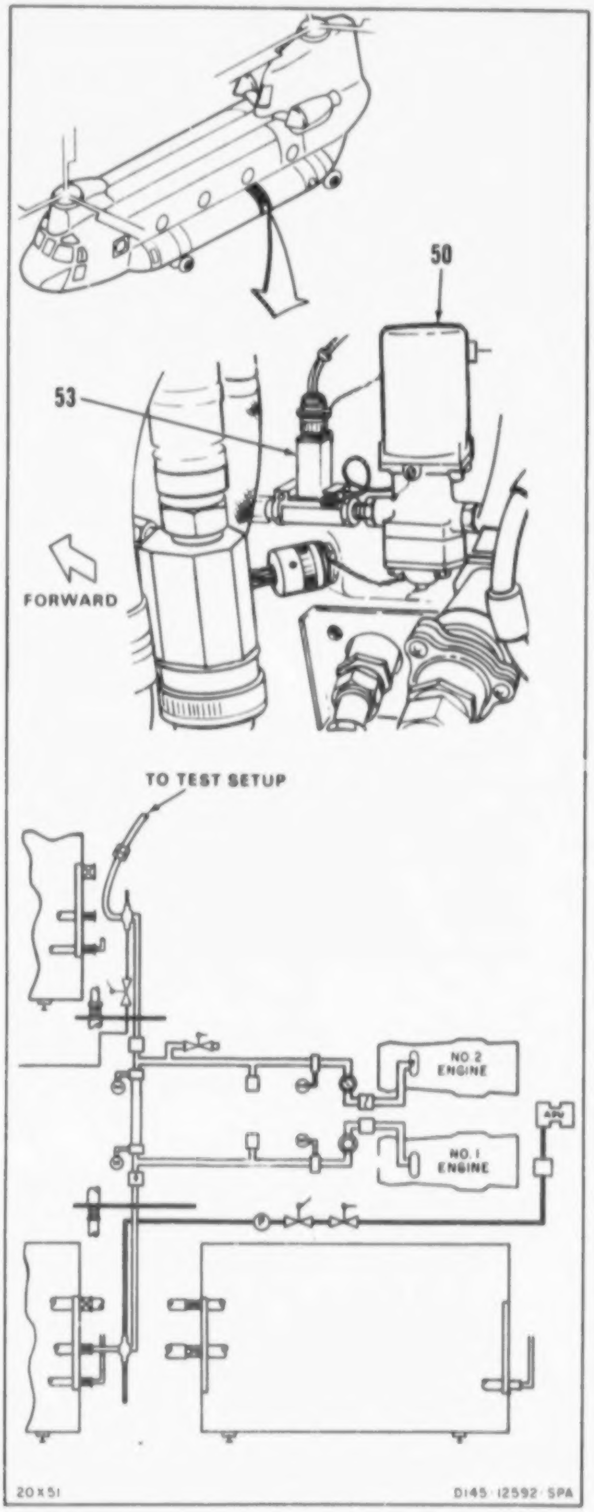

24
25
26
24.1
V
FORWARD
10162

GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

CHECK FOR LEAKS AT APU FUEL FEED LINE

40. **Check for leaks at boost pump (50) and solenoid shutoff valve (53).** Use soap and water mixture as in step 14a.

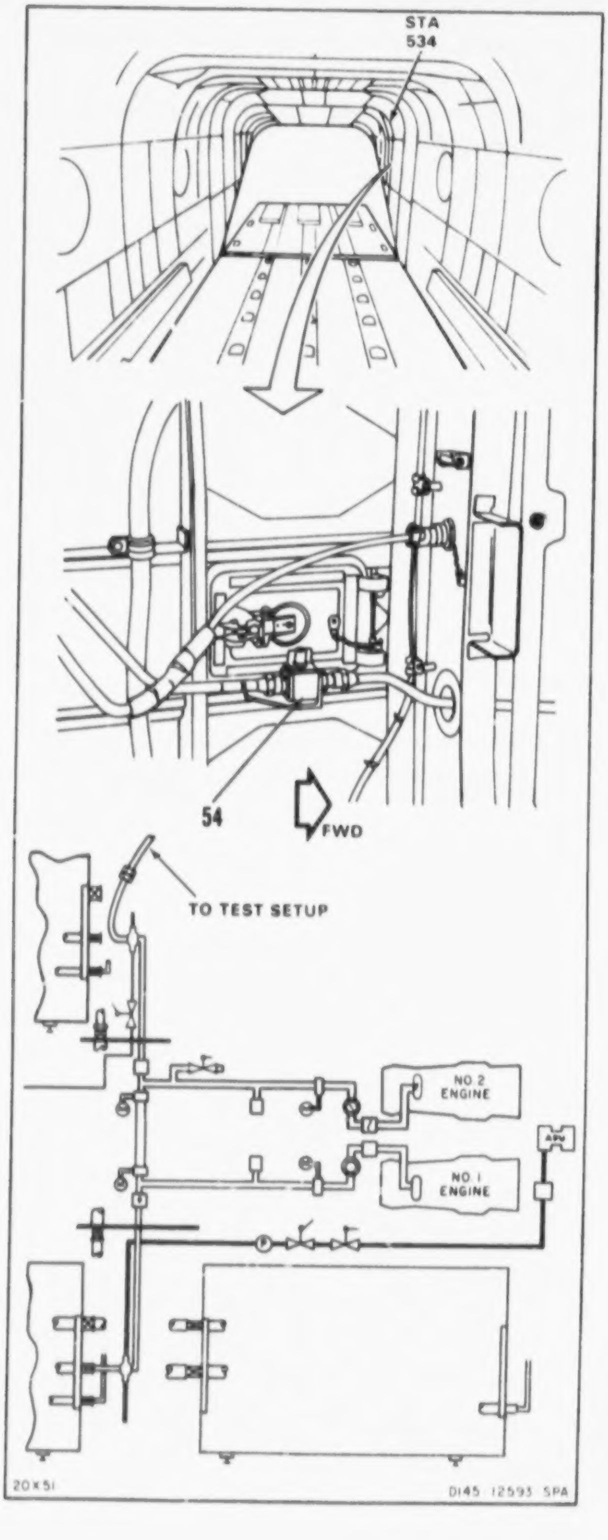

50
53
FORWARD
TO TEST SETUP
NO 2 ENGINE
APU
NO. 1 ENGINE
20X51
D145-12592-SPA

GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

41. **Check connections at apu manual shutoff valve (54).** Use soap and water mixture as in step 14a.

42. **Check tubing, hoses, and fittings.** Refer to TM 55-1500-204-25/1.

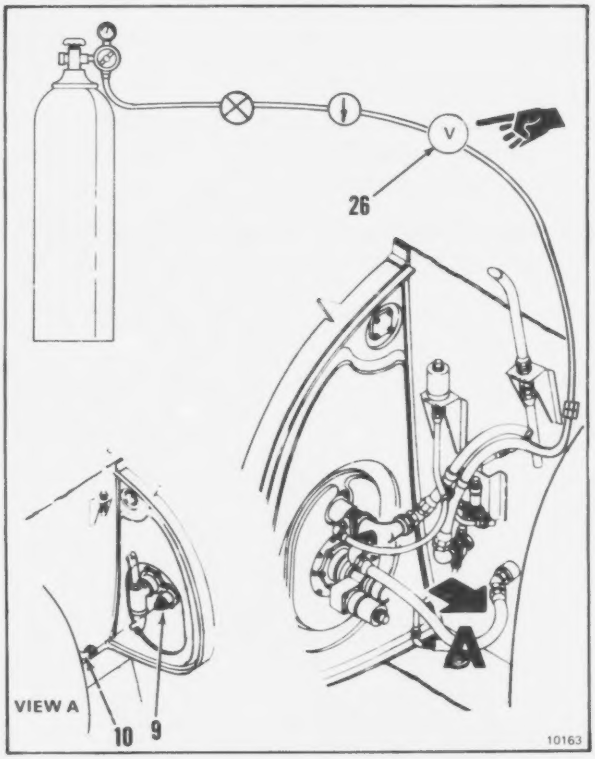

STA
534
54
FWD
TO TEST SETUP
NO 2
ENGINE
APU
NO 1
ENGINE
20X51
D145 12593 SPA

GO TO NEXT PAGE

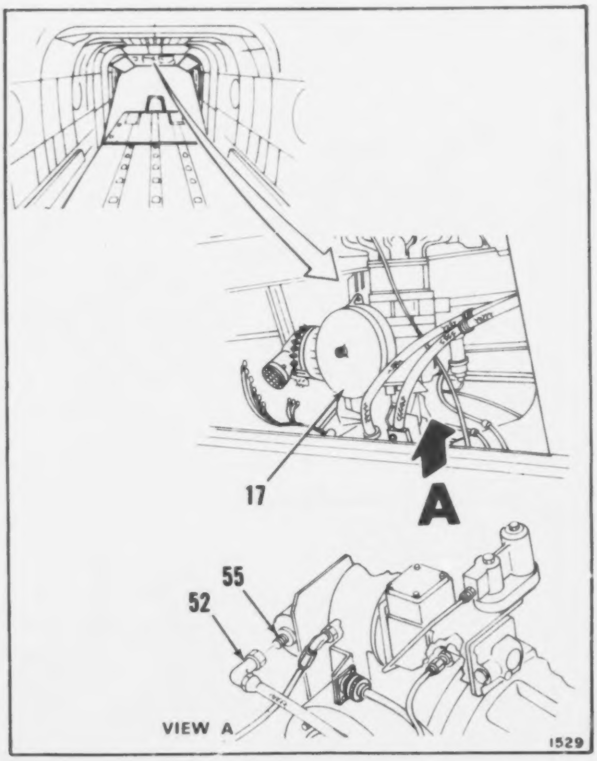
10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

REMOVE TEST SETUP AND CONNECT FUEL FEED SYSTEM

43. Open vent valve (26) and **reduce pressure to 0 psi**. Disconnect test setup.
44. Hold fitting (9) with wrench and **connect hose (10).**


V
26
A
VIEW A
10
9
10163

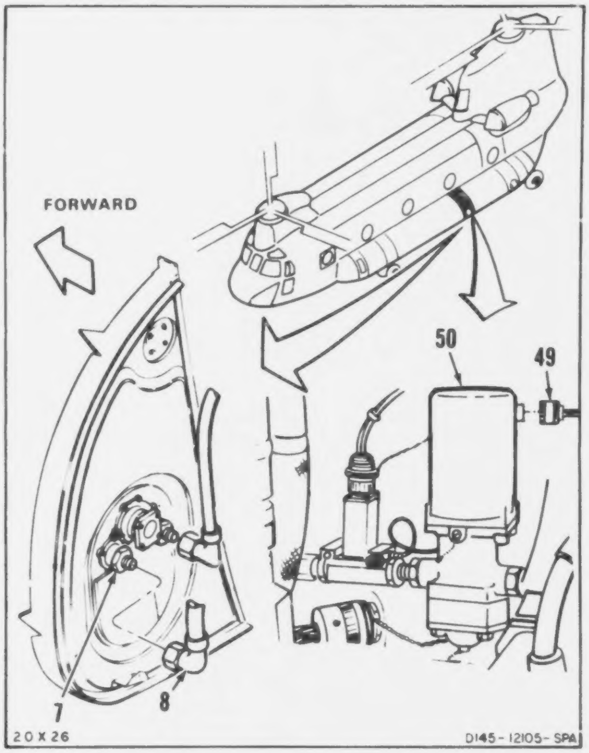
45. Remove plug from apu fuel hose (52). **Connect hose** to port (55) on apu (17).


17
A
55
52
VIEW A
1529

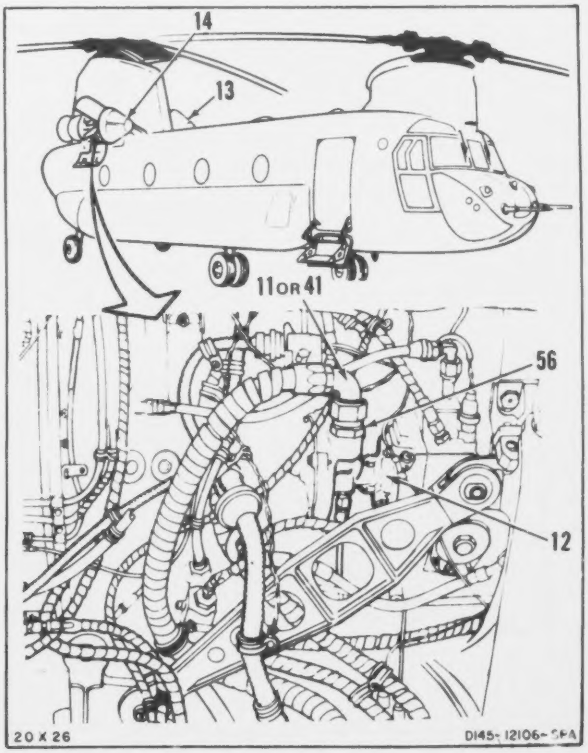
GO TO NEXT PAGE

10-120 TEST FUEL FEED SYSTEM (Continued) 10-120

46. **Connect electrical connector (49)** to apu fuel boost pump (50).
47. Remove plug from hose (8).
48. Hold fitting (7) with wrench and **connect hose (8).**


FORWARD
50
49
7
8
20 X 26
D145-12105-SPA

49. Remove plug from fuel hose (11) on No. 2 engine (13). **Connect hose to port (56) on fuel boost pump (12).**
50. Repeat step 49 on hose (41) at No. 1 engine (14).


14
13
11 OR 41
56
12
20 X 26
D145-12106-SPA

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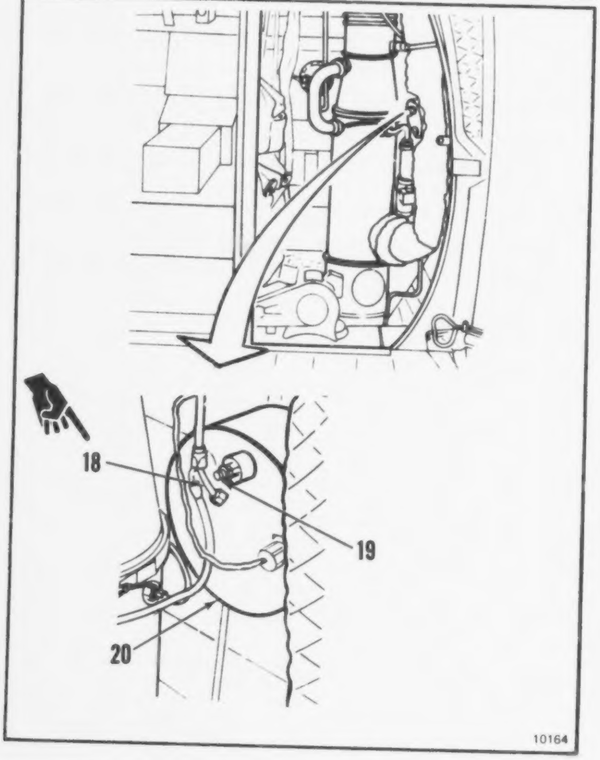
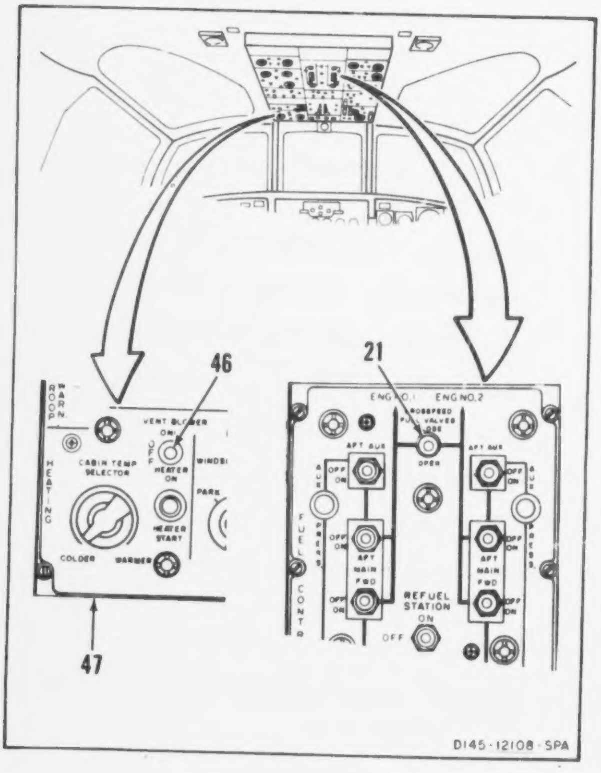
10-120 TEST FUEL FEED SYSTEM (Continued)

51. Remove plug from heater fuel hose (18).
52. Connect fuel hose (18) to port (19) on heater fuel control (20).

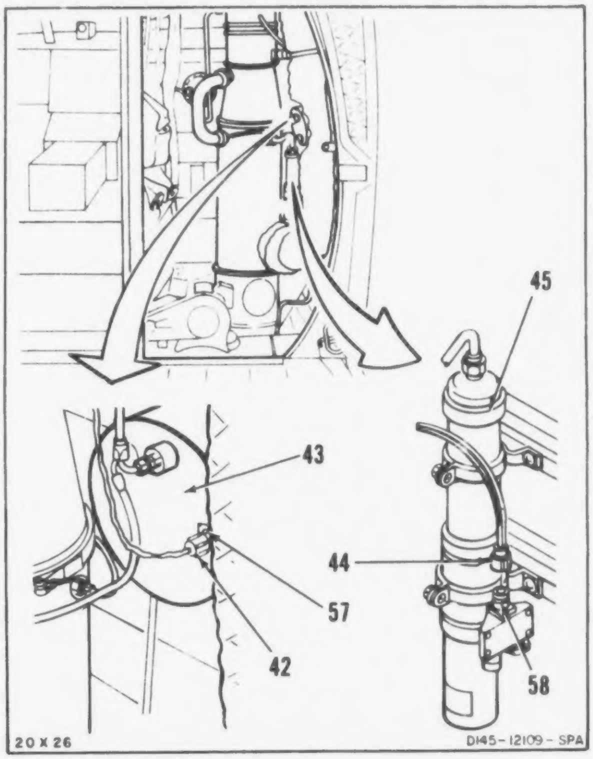

18
19
20
10164

53. **Set** CROSSFEED FUEL VALVE **switch (21) to CLOSE.**
54. **Set switch (46)** on HEATING panel (47) to **OFF.**


46
21
47
ROOF WARN
VENT BLOWER
ON
OFF
HEATER ON
HEATER START
CABIN TEMP SELECTOR
COLDER
WARMER
HEATING
ENG NO.1
ENG NO.2
CROSSFEED FUEL VALVES CLOSE
OPEN
AFT AUX
OFF
ON
FUEL PRESS
AFT MAIN FWD
REFUEL STATION
ON
OFF
D145-12108-SPA

GO TO NEXT PAGE

55. Connect electrical connector (42) to receptacle (57) on heater fuel control (43). Lockwire connector. Use lockwire (E229).
56. Connect electrical connector (44) to receptacle (58) on heater ignition unit (45). Lockwire connector. Use lockwire (E231).
57. Remove electrical power.



FOLLOW-ON MAINTENANCE:

Install heater compartment acoustic blanket (Task 2-108).

Close ramp work platform (Task 2-244).

Install APU drip pan (Task 2-3).

Cargo ramp closed (TM 55-1520-240-T).

Close engine access cover (Task 4-50).

Close engine work platform (Task 2-2).

Service fuel system (Task 1-51).

Bleed fuel system (Task 10-121).

Perform operational check of fuel system (Task TM 55-1520-240-T).

Inspect for leaks (Task 10-4).

Close aft intertank pod panels (Task 2-188).

END OF TASK

10-121 BLEEDING FUEL SYSTEM 10-121

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand
Wrench-Open, 1-Inch (2)
Drain Hose (2) - Approximately 16 Feet Long, One End To Have Male Adapter 7/8-14UNJ-3A
Drain Hose Approximately 16 Feet Long, One End To Have Male Adapter 9/16-1UNJF-3A

Materials:
Cloths (E135)

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

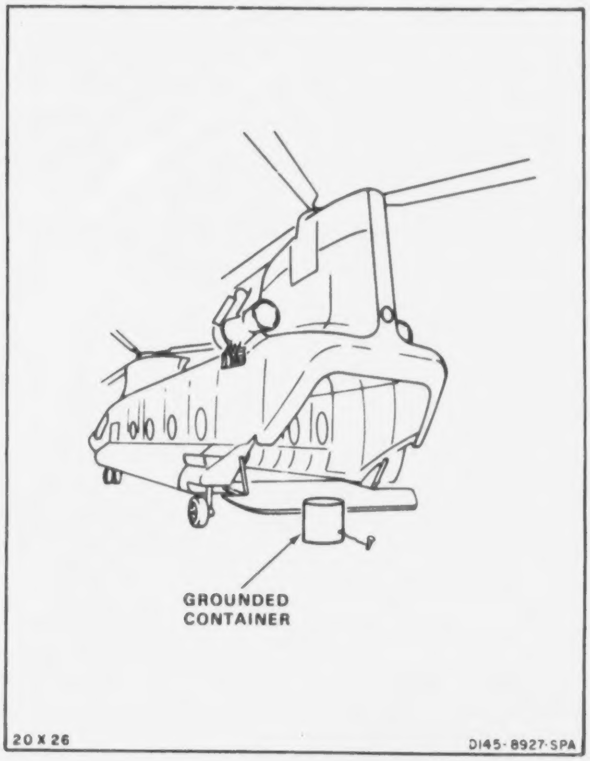
References:
Task 1-37

Equipment Condition:
Helicopter Refueled
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)
Engine Work Platform Open (Task 2-2)
Engine Access Cover Open (Task 4-49)
Ramp Open (TM 55-1520-240-T)
Grounded Container, 50 Gallon

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.



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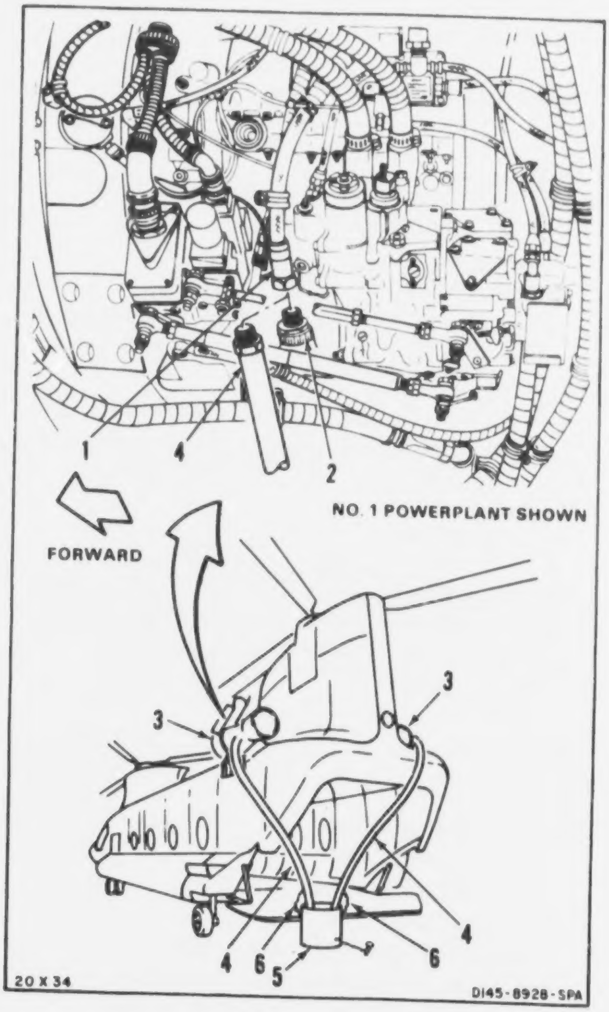
10-121 BLEEDING FUEL SYSTEM (Continued)

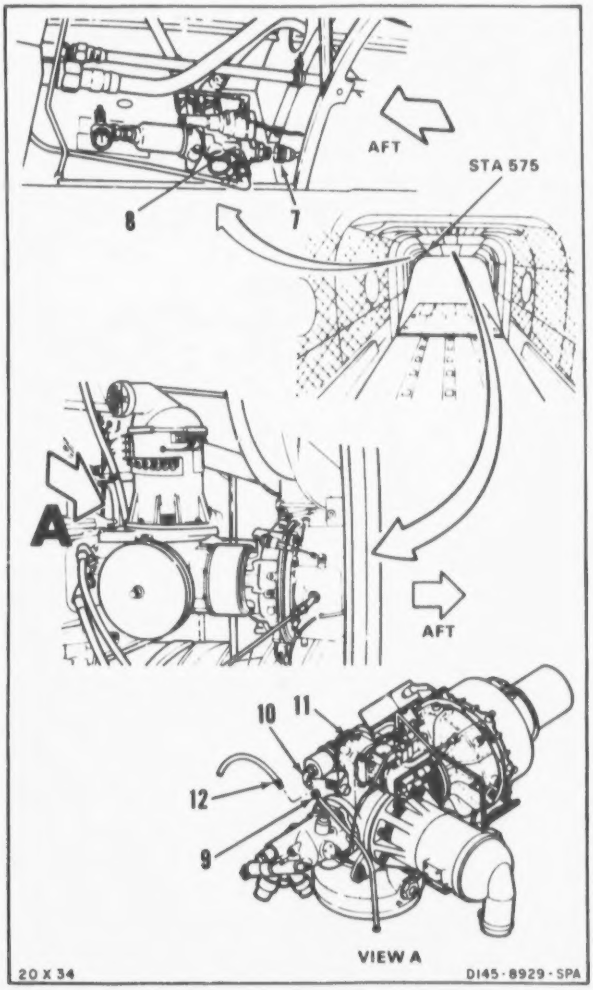
1. **Disconnect fuel hose (1)** from engine fuel control nipple (2) on both engines (3). Cap nipple on fuel control.
2. **Connect one drain hose (4) to fuel hose (1) on each engine (3).** Place free end of each drain hose in grounded container (5).
3. **Attach grounding wire (6)** on each drain hose (4) to grounded container (5).


1
4
2
FORWARD
NO. 1 POWERPLANT SHOWN
3
3
4
4
6
5
6
20 X 34
D145-8928-SPA

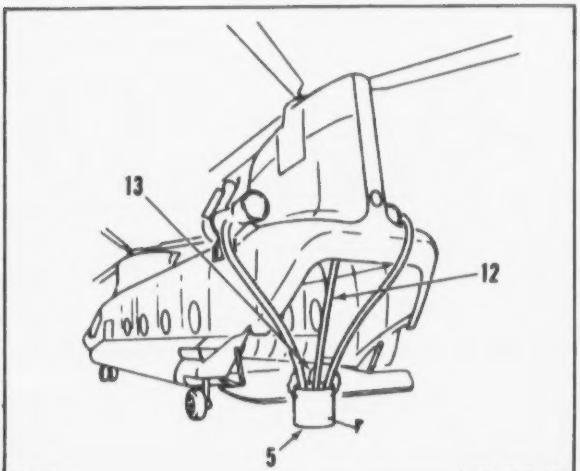
GO TO NEXT PAGE

10-121 BLEEDING FUEL SYSTEM (Continued) 10-121

4. Position workstand. **Disconnect electrical connector (7)** from apu start module (8).
5. **Disconnect fuel hose (9)** from filter adapter (10) on apu (11). Cap adapter.
6. **Connect drain hose (12) to fuel hose (9).**


AFT
STA 575
8
7
A
AFT
10
11
12
9
VIEW A
20 X 34
D145-8929-SPA

7. **Place free end of drain hose (12) in grounded container (5). Attach grounding wire (13)** to container.
8. **Apply ac power to helicopter** (Task 1-37).


13
12
5
20X17
D145-8930-SPA

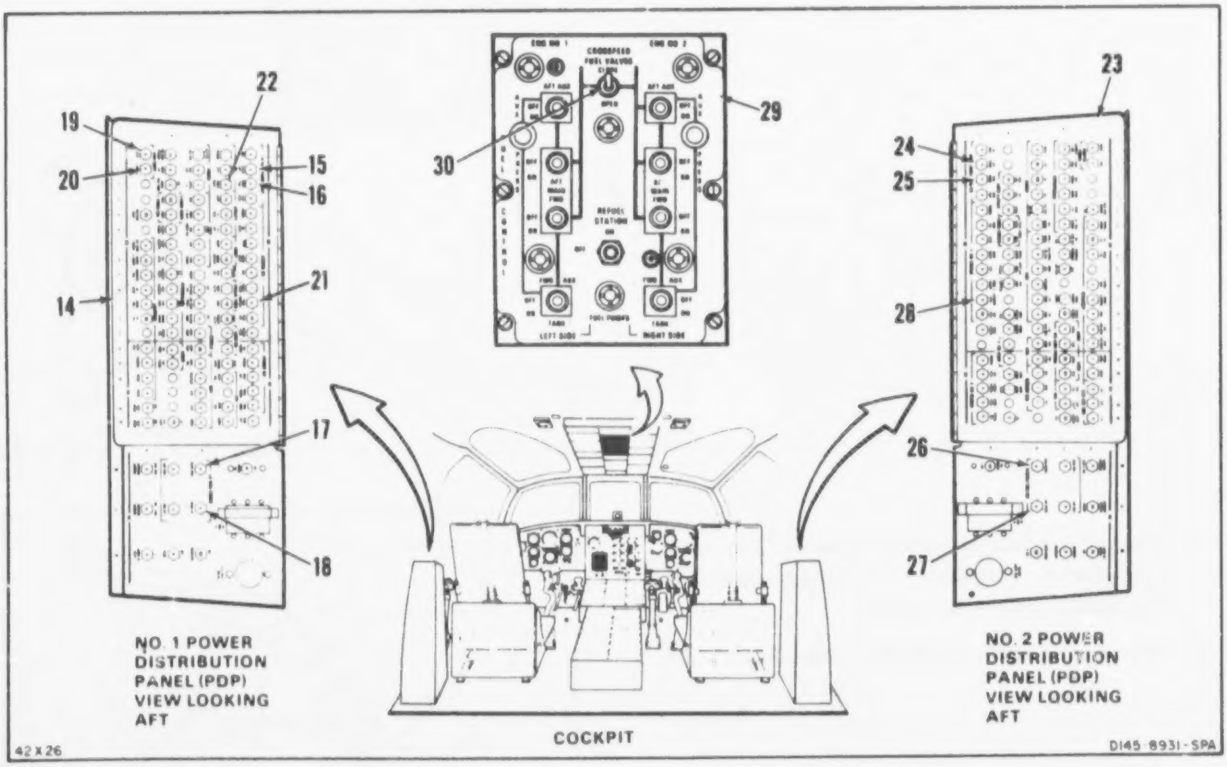
GO TO NEXT PAGE

10-121 BLEEDING FUEL SYSTEM (Continued) 10-121

9. In cockpit, on No. 1 PDP (14) **make sure that following circuit breakers are closed** (pushed in):
   LH FUEL PUMP CONT
   MAIN AFT (15) MAIN FWD (16)
   LH FUEL PUMPS
   MAIN FWD (17) MAIN AFT (18)
   APU CONT
   NORM (19) EMERG (20)
   ENGINE NO. 1 FUEL SHUTOFF (21)
   FUEL XFEED CONT (22)

10. On No. 2 PDP (23) **make sure that following circuit breakers are closed** (pushed in).
    RH FUEL PUMP CONT
    MAIN AFT (24)
    MAIN FWD (25)
    RH FUEL PUMPS
    MAIN FWD (26) MAIN AFT (27)
    ENGINE NO. 2 FUEL SHUTOFF (28)

11. On Fuel Control Panel (29) **set CROSSFEED FUEL VALVES switch (30) to CLOSE.**


22
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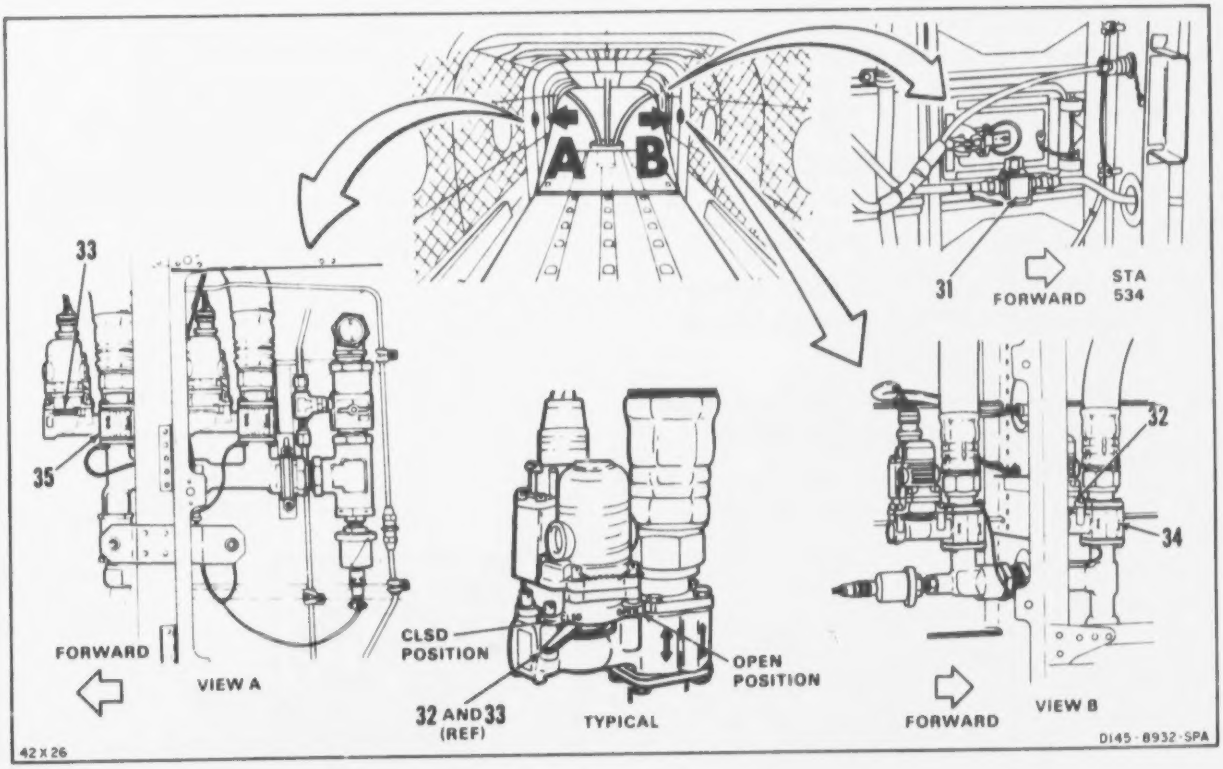
27
NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT
COCKPIT
NO. 2 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT
42 X 26
D145 8931-SPA

GO TO NEXT PAGE

10-121 BLEEDING FUEL SYSTEM (Continued) 10-121

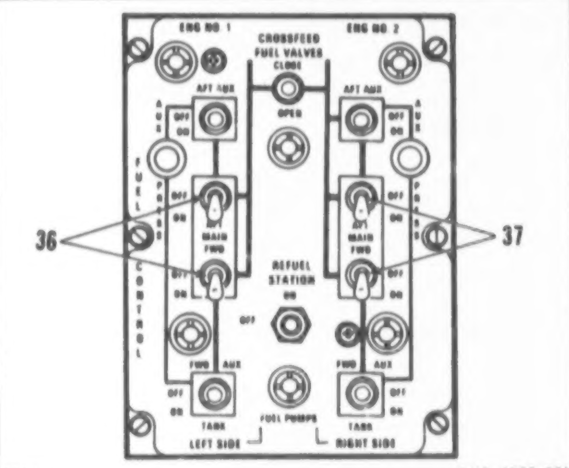
12. **Close apu fuel shutoff valve (31).**
13. Manually **set levers (32 and 33)** of engine fuel shutoff valves (34 and 35) **to CLSD position.**


A
B
31
FORWARD
STA
534
33
35
FORWARD
VIEW A
CLSD POSITION
OPEN POSITION
32 AND 33 (REF)
TYPICAL
32
34
FORWARD
VIEW B
42 X 26
D145-8932-SPA

GO TO NEXT PAGE

10-121 BLEEDING FUEL SYSTEM (Continued) 10-121

14. In cockpit **set MAIN TANK FUEL PUMPS switches (36 and 37) to ON.**


ENG NO 1
CROSSFEED FUEL VALVES CLOSE
ENG NO 2
AFT AUX
OPEN
OFF
ON
FUEL CONTROL
AFT MAIN FWD
REFUEL STATION ON
FWD AUX
TANK
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
36
37

20X17 D145-8933-SPA

15. Manually **set lever (33)** of No. 2 (right) engine shutoff valve (35) **to OPEN.**

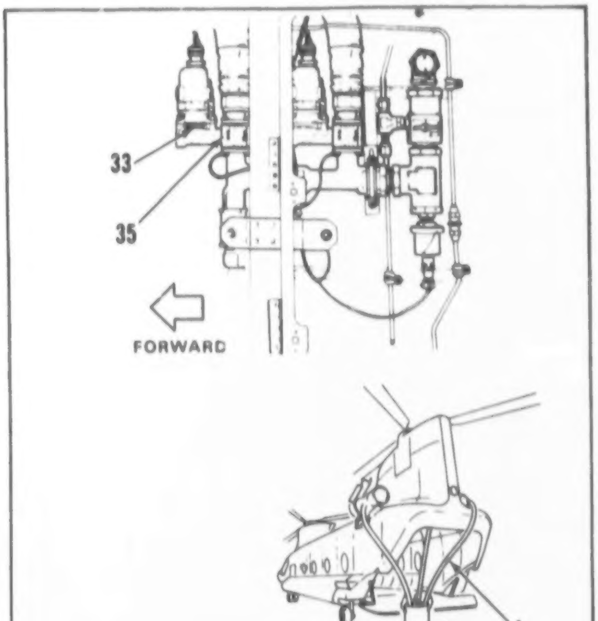
16. **When air free stream of fuel flows from right drain hose (4), set lever (33) to CLSD position.**

17. In cockpit **set CROSSFEED FUEL VALVES switch (30) to OPEN.**

18. **Set lever (33) to OPEN position.**

19. In cockpit **set two RIGHT SIDE MAIN TANK FUEL PUMPS switches (37) to OFF.**

20. **When air free stream of fuel flows from right drain hose (4) set lever (33) to CLSD position.**

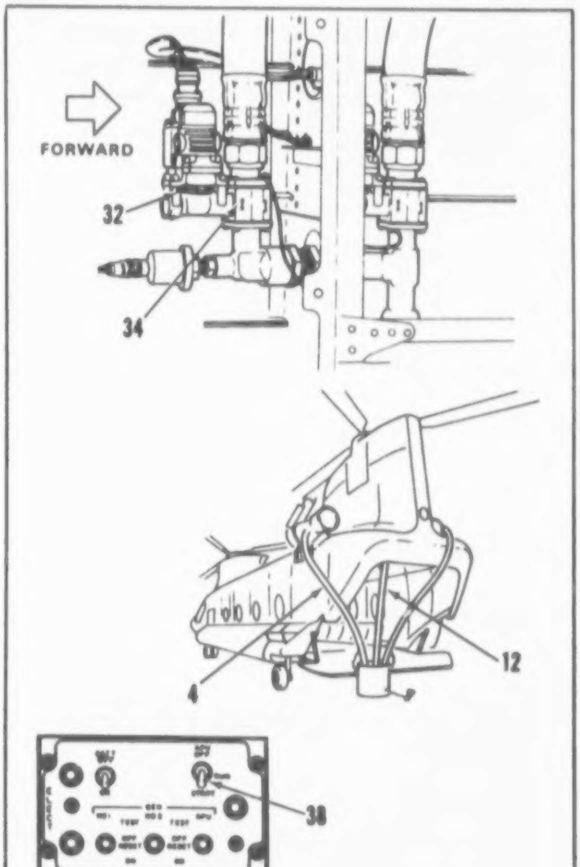

33
35
FORWARD
4
30
37

20 X 34 D145-8934-SPA

GO TO NEXT PAGE

10-121 BLEEDING FUEL SYSTEM (Continued) 10-121

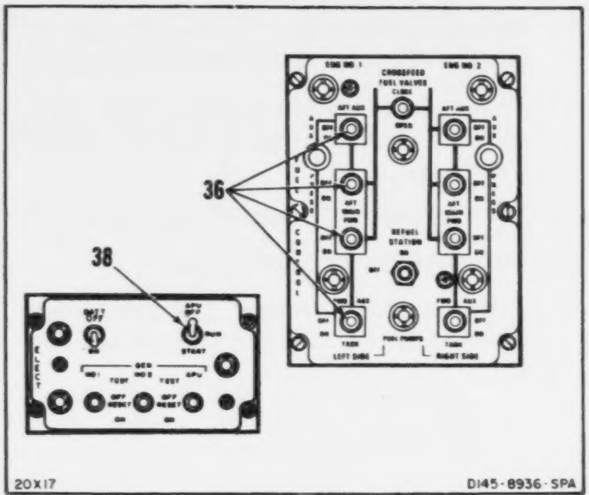
21. **Set lever (32)** of No. 1 (left) engine fuel shutoff valve (34) **to OPEN position.**
22. **When air free stream of fuel flows from left drain hose (4), set lever (32) to CLSD position.**
23. In cockpit **set APU switch (38) to START.**
24. **Open apu shutoff valve (31).**
25. **When air free stream of fuel flows from drain hose (12), close apu shutoff valve (31).**



GO TO NEXT PAGE

10-121 BLEEDING FUEL SYSTEM (Continued) 10-121

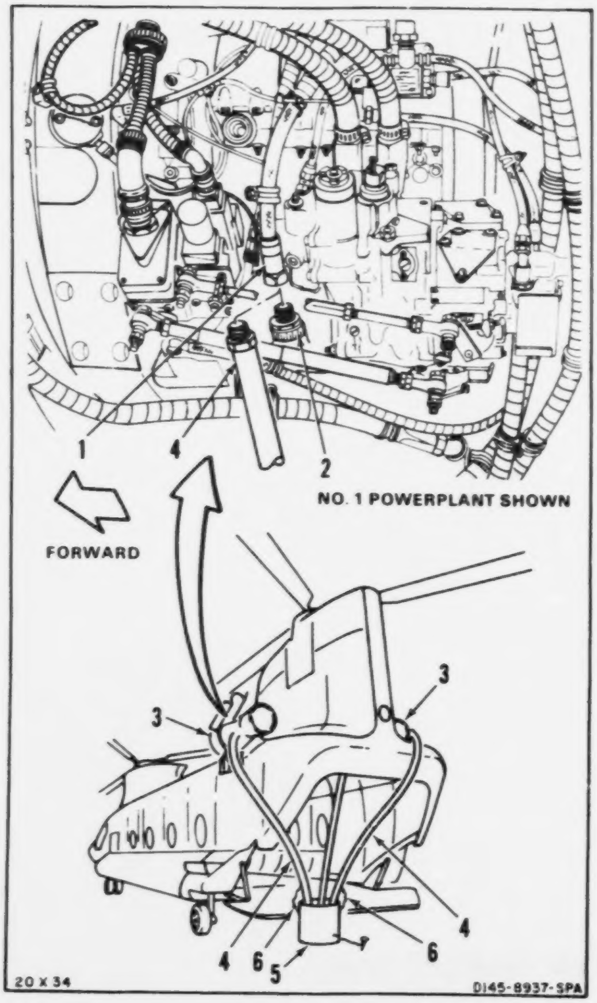
26. In cockpit, **set two LEFT SIDE MAIN TANK FUEL PUMP switches (36) to OFF. Set APU switch (38) to OFF.**


ENG NO 1
CROSSFEED FUEL VALVES
CLOSE
OPEN
ENG NO 2
AFT AUX
REFUEL STATION
FUEL PUMPS
TANK
LEFT SIDE
RIGHT SIDE
36
38
BATT OFF
APU OFF
START
ELECT
GEN
TEST
20X17
D145-8936-SPA

27. **Disconnect drain hose (4)** from fuel hose (1) on both engines (3).

28. Remove caps from nipples (2) on both engines (3). **Connect fuel hoses (1)** to adapters.

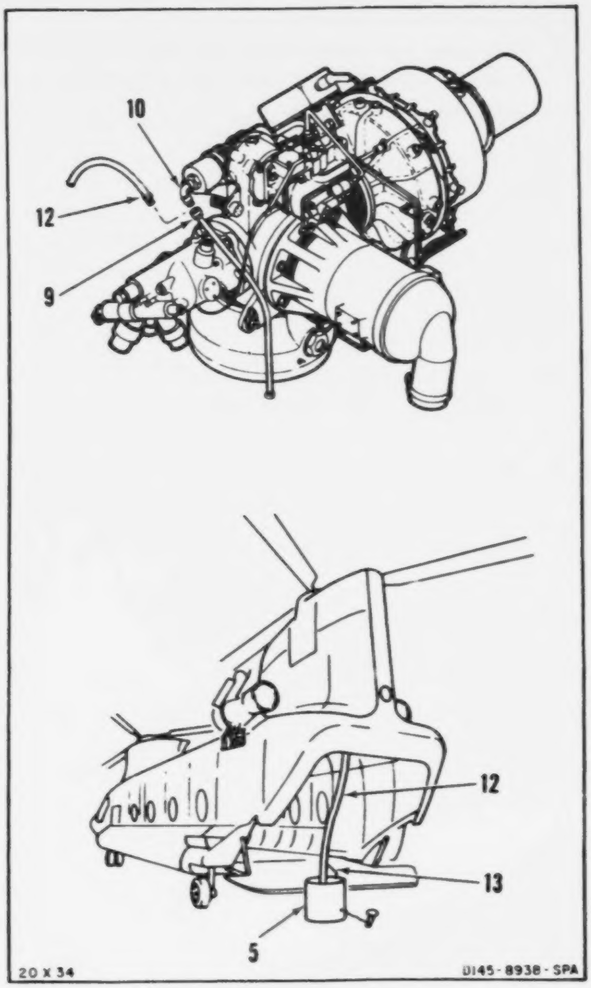
29. Remove two grounding wires (6) from container (5). **Remove two drain hoses (4)** from helicopter.


1
4
2
NO. 1 POWERPLANT SHOWN
FORWARD
3
3
4
6
4
6
5
20 X 34
D145-8937-SPA

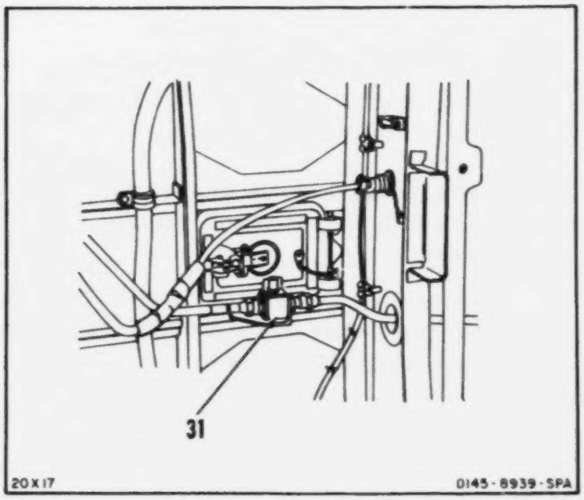
GO TO NEXT PAGE

10-121 BLEEDING FUEL SYSTEM (Continued) 10-121

30. **Disconnect drain hose (12)** from fuel hose (9). Remove cap from adapter (10). **Connect fuel hose** to adapter.
31. Remove grounding wire (13) from container (5). **Remove drain hose (12) and container** from vicinity of helicopter.


10
12
9
12
13
5
20 X 34
0145-8938-SPA

32. **Open apu shutoff valve (31).**


31
20 X 17
0145-8939-SPA

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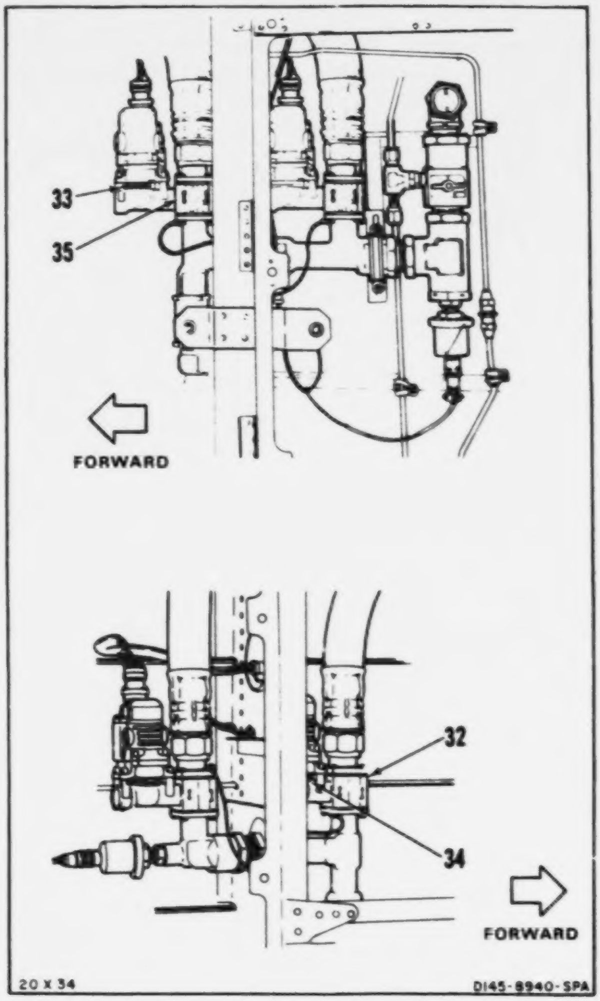
10-121 BLEEDING FUEL SYSTEM (Continued) 10-121

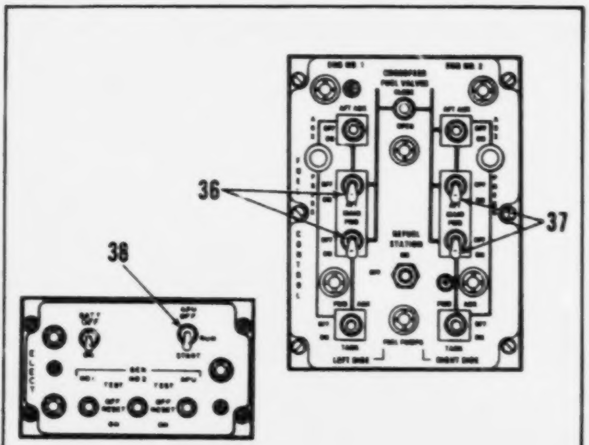
33. Manually **set levers (32 and 33)** of engine fuel shutoff valves (34 and 35) **to OPEN position.**


33
35
FORWARD
32
34
FORWARD
20 X 34
D145-8940-SPA

34. In cockpit **set four MAIN TANK FUEL PUMP switches (36 and 37) to ON. Set APU switch (38) to START.**

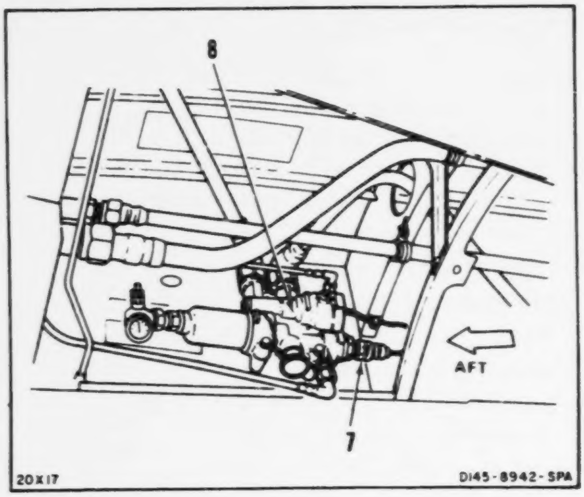
35. **Check three fuel hose connectors,** (one on each engine, one on apu) **for fuel leakage.**

36. In cockpit, **set four MAIN TANK FUEL PUMP switches (36 and 37) to OFF. Set APU switch (38) to OFF.**


36
37
38
20X17
D145-8941-SPA

GO TO NEXT PAGE

37. **Connect electrical connector (7)** to apu start module (8).
38. Remove ac power from helicopter (Task 1-37).
39. Clean up spilled fuel. Use cloths (E135).



INSPECT

FOLLOW-ON MAINTENANCE:

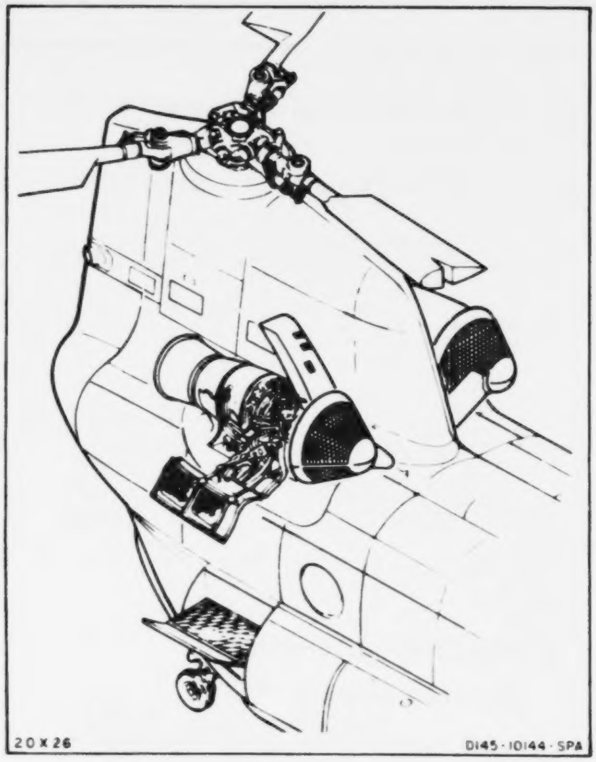
Remove workstand.

Close engine access cover (Task 4-50).

Close engine work platform (Task 2-2).

END OF TASK

10-122 BLEEDING AND PRIMING ENGINE FUEL CONTROLS 10-122



INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Flexible Drain Hose-Open One End, Other End No. 8 (11/16 Across Flats) Female Union, 20 Feet Long

Container, Five-Gallon

Materials:

None

Personnel Required:

Medium Helicopter Repairer (2)

Inspector

References:

Task 1-37

Task 1-38

Equipment Condition:

Helicopter Grounded (Task 1-29)

Engine Work Platform Open (Task 2-2)

Engine Access Cover Open (Task 4-49)

Apply AC Electrical Power and Hydraulic Power to Helicopter (Task 1-37 and 1-38)

Grounded Container

General Safety Instructions:

WARNING

All regulations and instructions for handling fuels shall be strictly observed.

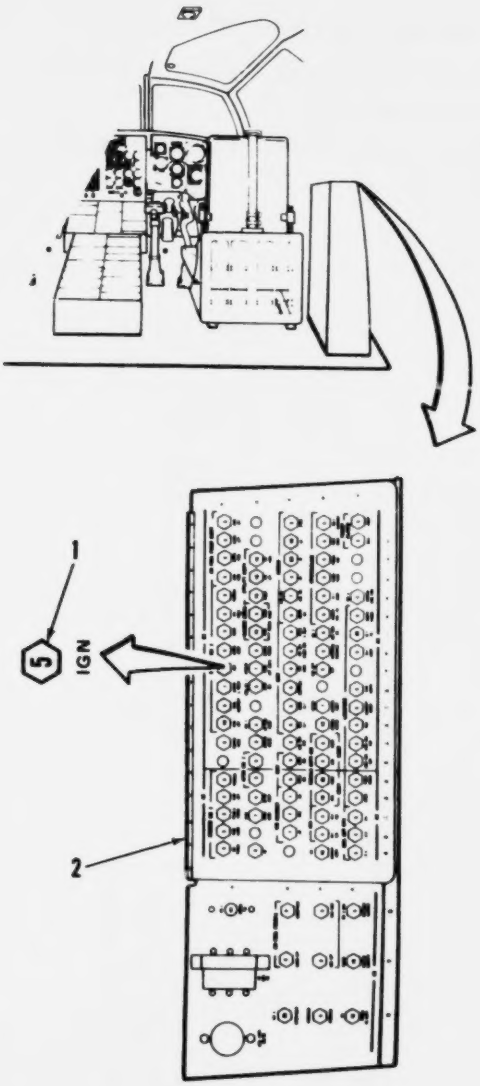
GO TO NEXT PAGE

10-122 BLEEDING AND PRIMING ENGINE FUEL CONTROL (Continued) 10-122

NOTE

Procedure to bleed and prime engine fuel control for No. 1 or No. 2 engine is same. Bleeding and priming of No. 2 (right) engine is shown here.

1. **Open IGN circuit breaker (1)** on No. 2 power distribution panel (2).



NO. 2 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT

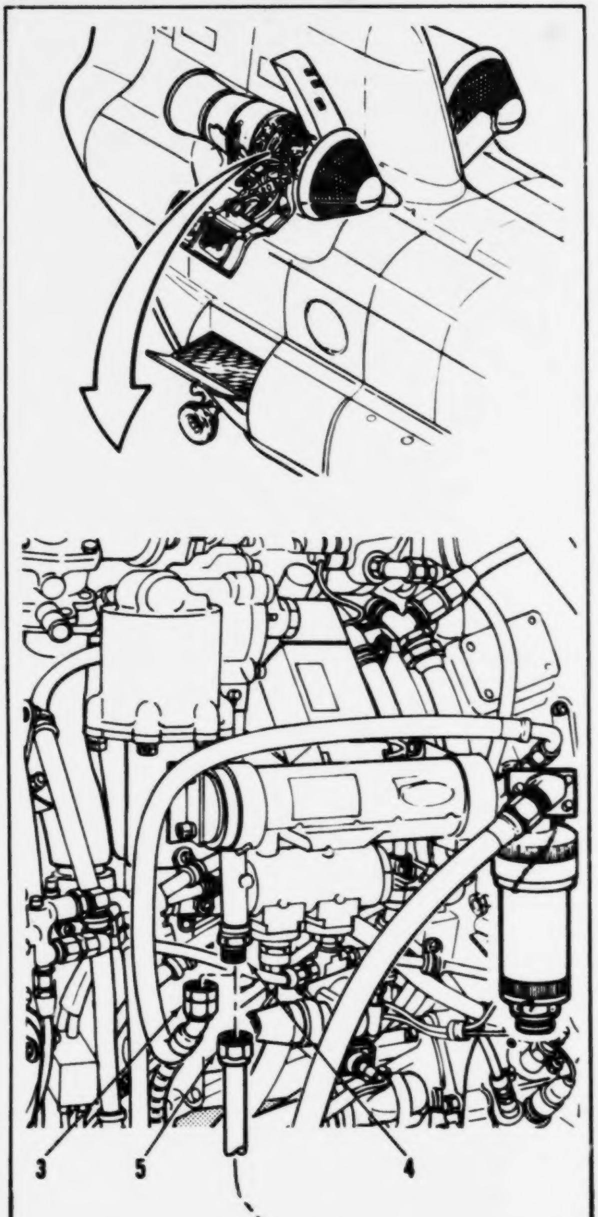
20x51

D145-12369-SPA

GO TO NEXT PAGE

10-122 BLEEDING AND PRIMING ENGINE FUEL CONTROL (Continued) 10-122

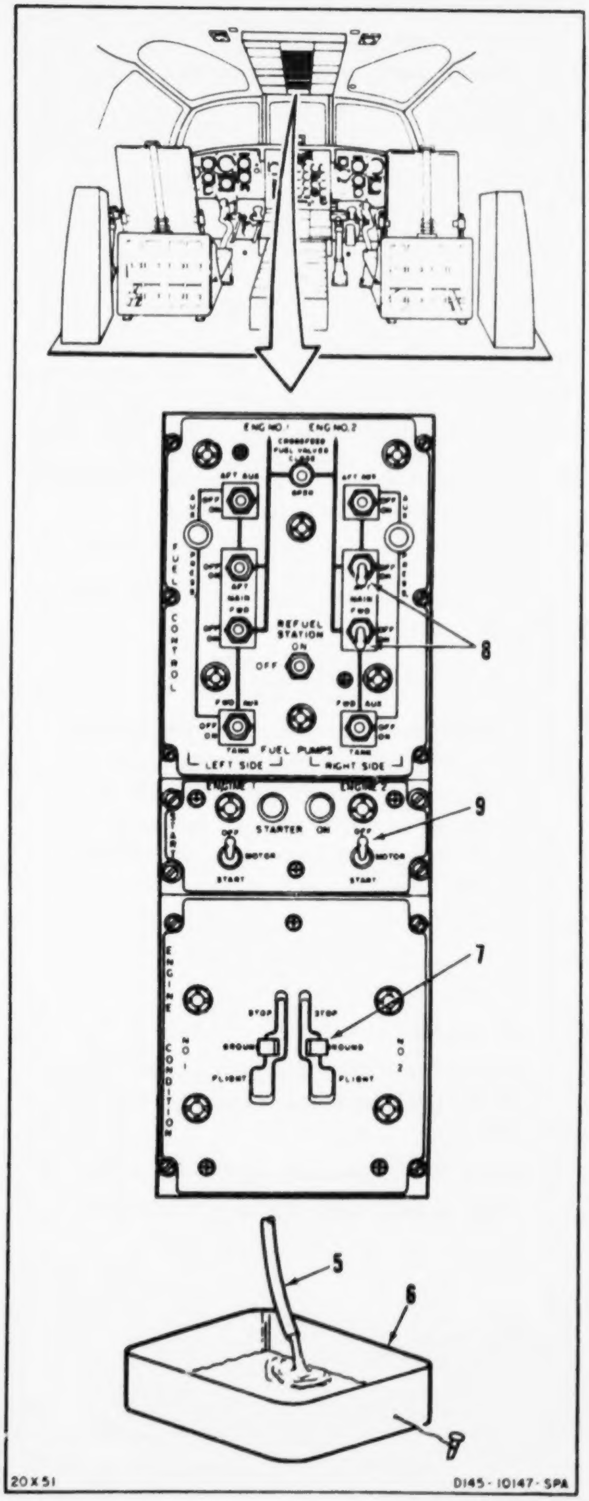
2. **Disconnect hose connector (3)** from oil cooler outlet (4).
3. **Connect drain hose (5)** to outlet (4).
4. **Position free end of drain hose (5) in container (6).**
5. Have helper ready to observe fuel flow from hose (5).



GO TO NEXT PAGE

10-122 BLEEDING AND PRIMING ENGINE FUEL CONTROL (Continued) 10-122

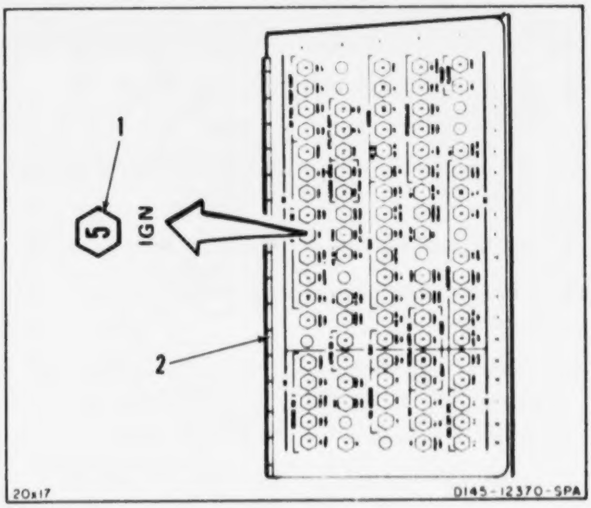
6. Set ENGINE CONDTION lever (7) to GROUND.
7. Set applicable MAIN AFT and FWD switches (8) to ON.
8. Set applicable ENGINE switch (9) to MOTOR.
9. Observe flow of fuel from hose (5) into container (6).
10. When clear, air free fuel flows from hose (5), cycle ENGINE CONDITION lever (7) from GROUND to STOP at least five times.
11. Set ENGINE CONDITION lever (7) to STOP.
12. Set ENGINE switch (9) to OFF.
13. Set MAIN AFT and FWD switches (8) to OFF.
14. Shutdown ac and hydraulic power (Task 1-37 and 1-38).


ENG NO 1
ENG NO 2
FUEL CONTROL
REFUEL STATION ON
OFF
FUEL PUMPS
LEFT SIDE
RIGHT SIDE
8
ENGINE 1
ENGINE 2
STARTER
ON
OFF
MOTOR
START
9
ENGINE CONDITION
NO 1
NO 2
STOP
GROUND
FLIGHT
7
5
6
20X51
D145-10147-SPA

GO TO NEXT PAGE

10-122 BLEEDING AND PRIMING ENGINE FUEL CONTROLS (Continued) 10-122

15. Close IGN circuit breaker (1) on No. 2 power distribution panel (2).

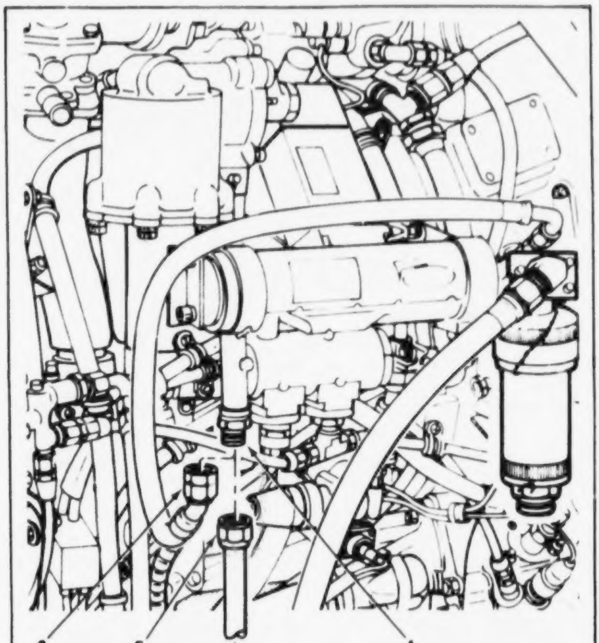


16. Disconnect defueling hose (5). Remove hose and container (6) from helicopter.
17. Connect hose connector (3) to oil cooler outlet (4).

INSPECT

CAUTION

After engine motoring, liquid will accumulate in the combustion chamber. The liquid must be allowed to drain before starting the engine. Otherwise, torching will occur.



FOLLOW-ON MAINTENANCE:

Remove ac electrical power and hydraulic power from helicopter (Task 1-37 and 1-38).

Close engine access cover (Task 4-50).

Close engine work platform (Task 2-2).

END OF TASK

Pages Index-1 thru Index-118 Deleted

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E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

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☆U.S. GOVERNMENT PRINTING OFFICE: 1990 - 262-842/25166

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CO A, 3d ENGINEER BN
FT. LEONARDWOOD, MO 63108

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 55-1520-240-23-8	10 May 83	Aviation Unit & Intermediate Maintenance Manual, CH-47D

BE EXACT PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	
6	2-1 a			In line 6 of paragraph 2-1a the manual states the engine has 6 Cylinders. The engine on my set only has 4 Cylinders. Change the manual to show 4 Cylinders.
81		4-3		Callout 16 on figure 4-3 is pointing at a bolt. In key to figure 4-3, item 16 is called a shim - Please correct one or the other.
125	line 20			I ordered a gasket, item 19 on figure B-16 by NSN 2910-00-762-3001. I got a gasket but it doesn't fit. Supply says I got what I ordered, so the NSN is wrong. Please give me a good NSN

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
JOHN DOE, PFC (268) 317-7111

SIGN HERE John Doe
JOHN DOE

DA FORM 1 JUL 79 2028-2

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimenter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigrams = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 38.82 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimenter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	3.94
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.365	metric tons	short tons	1.102
pound-inches	newton-meters	.11375			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C